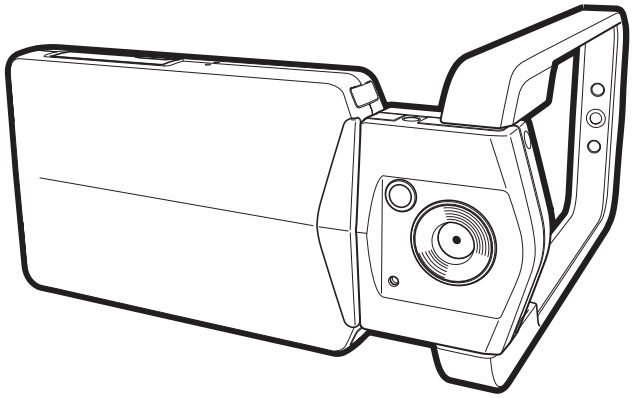
CASIO

E

Digital Camera

EX-TR200

User's Guide



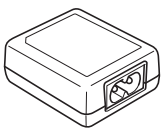
Thank you for purchasing this CASIO product.

- Before using it, be sure to read the precautions contained in this User's Guide.
- Keep the User's Guide in a safe place for future reference.
- For the most up-to-date information about this product, visit the official EXILIM Website at http://www.exilim.com/

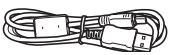
EXILIM

Accessories

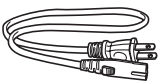
As you unpack your camera, check to make sure that all accessories shown below are included. If anything is missing, contact your original retailer.



USB-AC adaptor
(AD-C53U)



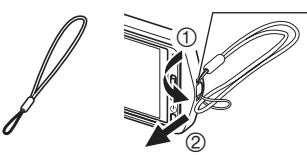
USB cable



* The shape of the power cord plug varies according to country or geographic area.

Power cord

To attach the strap to the camera



Strap

Stylus
Used when performing screen operations and when extracting a subject (“Cut out subject” page 74).

Read this first!

- The contents of this manual are subject to change without notice.
- The contents of this manual have been checked at each step of the production process. Feel free to contact us if you notice anything that is questionable, erroneous, etc.
- Any copying of the contents of this User's Guide, either in part or its entirety, is forbidden. Except for your own personal use, any other use of the contents of this manual without the permission of CASIO COMPUTER CO., LTD. is forbidden under copyright laws.
- CASIO COMPUTER CO., LTD. shall not be held liable for any damages or lost profits suffered by you or any third party due to the use or malfunction of this product.
- CASIO COMPUTER CO., LTD. shall not be held liable for any damages, lost profits, or claims by third parties arising out of the use of Photo Transport.
- CASIO COMPUTER CO., LTD. shall not be held liable for any damages or lost profits caused by loss of memory contents due to malfunction, repair, or any other reason.
- Note that the example screens and product illustrations shown in this User's Guide may differ somewhat from the screens and configuration of the actual camera.

LCD Panel

The liquid crystal panel of the monitor screen uses high-precision technology that provides a pixel yield in excess of 99.99%. This means that some very small number of pixels may not light or may remain lit at all times. This is due to the characteristics of the liquid crystal panel, and does not indicate malfunction.

Take test shots

Before shooting your final image, shoot a test shot to ensure that the camera is recording correctly.

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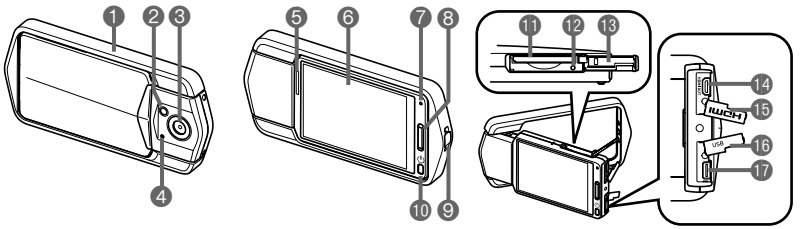
General Guide

The numbers in parentheses indicate the pages where each item is explained.

Front **Back**



1. Frame (page 14)
2. LED light (page 57)
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6. Monitor screen (pages 9)
7. Back lamp (pages 20, 22, 28, 30)
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15. HDMI terminal cover (page 71)
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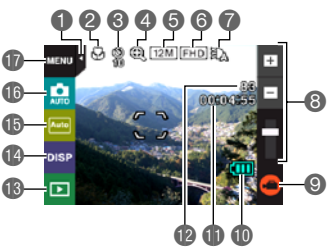
Monitor Screen Contents and How to Change Them

The monitor screen uses various indicators, icons, and values to keep you informed of the camera's status.

- The sample screens in this section are intended to show you the locations of all the indicators and figures that can appear on the monitor screen in various modes. They do not represent screens that actually appear on the camera.

■ Snapshot Recording



1. Tab (page 28)
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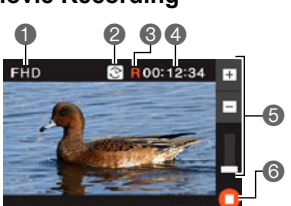
3. Self-timer mode (page 56)
4. Digital zoom (page 41)
5. Snapshot image size (page 58)
6. Movie quality (pages 44, 59)
7. LED light (page 57)
8. Zoom bar (pages 30, 41)
9. "" Movie icon (pages 31, 44)
10. Battery level indicator (page 23)
11. Movie capacity (recording time) (page 30)
12. Snapshot capacity (number of shots) (page 30)
13. PLAY mode icon (page 28)
14. Information icon (page 11)
15. Screen orientation icon (page 11)
16. Recording mode icon (page 36)
17. Menu icon (page 55)

NOTE

- 11 Movie capacity and 12 Snapshot capacity do not appear in the following cases, even if "Information On" is selected for the information display setting (page 11).
  - Portrait orientation display
  - When the monitor screen and lens are facing in the same direction

■ Movie Recording

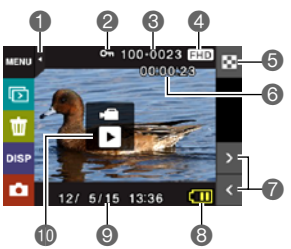


1. Movie quality (pages 44, 59)
2. Recording time switch icon (page 45)
3. Movie remaining time icon (page 45)
4. Remaining movie memory capacity/ Movie recording time (pages 45, 124)
5. Zoom bar (pages 30, 41)
6. "" Movie stop icon (pages 31, 45)

■ Snapshot Viewing

1. Tab (page 28)
2. Protect indicator (page 76)
3. Folder name/file name (page 92)
4. Snapshot image size (page 58)
5. Image menu icon (page 69)
6. Image scroll icons (pages 32, 65)
7. Battery level indicator (page 23)
8. Date/time (pages 24, 97)
9. REC mode icon (page 28)
10. Information icon (page 11)
11. Delete icon (page 33)
12. Slideshow icon (page 69)
13. Menu icon (page 73)

■ Movie Playback



1. Tab (page 28)
2. Protect indicator (page 76)
3. Folder name/file name (page 92)
4. Movie quality (pages 44, 59)
5. Image menu icon (page 69)
6. Movie recording time (page 65)
7. Image scroll icons (pages 32, 65)
8. Battery level indicator (page 23)
9. Date/time (pages 24, 97)
10. “▶” Movie play icon (page 65)

Changing the Screen Orientation

Normally, the camera automatically detects its current orientation and changes the icon and recorded image orientation accordingly. Note, however that the camera may not be able to detect its orientation correctly if it is pointed straight downwards. In this case, you can temporarily change the icon and recorded image orientation. This setting will remain in effect until you change it or until you turn off the camera.

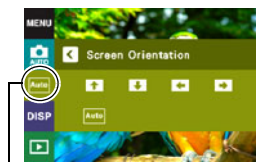
1. Enter the REC mode.

2. Touch the screen orientation icon.

- If the icon is not displayed on the screen, touch the tab to display it.

3. Touch the icon of the orientation you want to use.

This will cause both the icons and the recorded image to change in accordance with your selection.



Screen orientation icon

Auto	Camera detects its current orientation and automatically changes the icon and screen orientation accordingly.
↑	Icon tops facing up.
←	Icon tops facing left.
↓	Icon tops facing down.
→	Icon tops facing right.

Selecting Display Information (DISP)

Each touch of “DISP” will cycle through settings that display or hide on-screen information. You can configure separate settings for the REC mode and PLAY mode.

- If “DISP” is not displayed on the screen, touch the tab to display it.
- Display information cannot be changed during movie recording.

Off	No information displayed.
Information On	Shows information about image settings, etc.
Status On	Shows more detailed information about settings. • When Status On is selected, you will not be able to view the subject on the monitor screen.

When Status On is selected for display information in the PLAY mode, the exposure, shutter speed, and ISO sensitivity setting values of the currently displayed image are displayed in orange when the current image’s Auto Exposure (AE) is not correct.

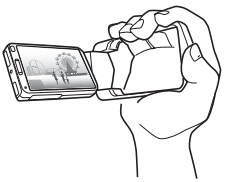
Quick Start Basics

What you can do with your CASIO camera

Your CASIO camera is packed with a powerful selection of features and functions to make recording of digital images easier, including the following main functions.

A variety of shooting styles

The frame can be opened and the LCD monitor screen rotated into positions that make long-term shooting more comfortable and simplify self-shooting.



See page **14** for more information.

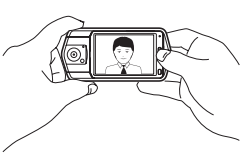
Simple touch panel operation

The monitor screen is a touch panel that can be used to perform operations.

See page **17** for more information.

Simple self-shooting

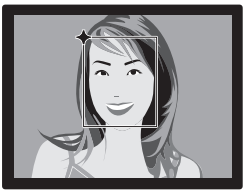
The monitor screen can be rotated so it faces in the same direction as the camera's lens, making self-shooting much easier.



See page **43** for more information.

Make-Up

Make-up smoothes the skin texture of the subject and softens facial shadows caused by harsh sunlight for better looking portraits.



See page **39** for more information.

ART SHOT

A variety of artistic effects help to make even common, ordinary subjects become more novel and exciting. “ART SHOT” provides the following effects: HDR Art, Toy Camera, Soft Focus, Light Tone, Pop, Sepia, Monochrome, Miniature, Fisheye.

See page **37** for more information.

Extract a subject from one photo and insert it into another

A simple operation lets you extract a person or object out of one snapshot and insert into another snapshot.

See pages **74**, **75** for more information.

Changing the Camera Style to Suit Shooting Conditions

You can change the configuration of the camera by opening or closing the frame and rotating the monitor screen panel to suit shooting conditions.

IMPORTANT!

- Do not apply strong pressure to the surface of the monitor screen. Doing so can damage it.
- Never touch the lens with your fingers. Finger smudges, dirt, and other foreign matter on the lens can interfere with proper operation of the camera. Use a blower or other means to keep the lens and flash window free of dirt and dust, and wipe gently with a soft, dry cloth.

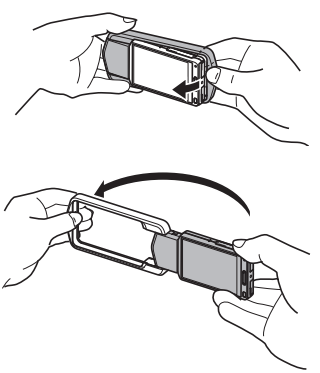
Opening and Closing the Frame

The frame of the camera can be rotated 360 degrees.

1. **With the monitor screen facing towards you, hold onto the frame.**

2. **Push the monitor screen panel from behind.**

3. **Holding the edges of the monitor screen panel, swing the frame open.**



IMPORTANT!

- Do not try to open or close the frame while the monitor screen panel is rotated. Doing so can cause the frame to come into contact with the monitor screen panel and cause malfunction.

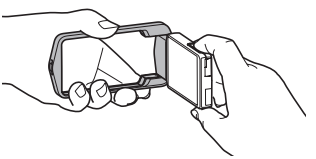
Rotating the Monitor Screen

Use the steps below to rotate the monitor screen.

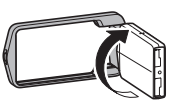
NOTE

- While holding the monitor screen panel as shown in the illustration, you can rotate it 180 degrees clockwise and 90 degrees counterclockwise.
- The monitor screen panel can also be rotated when the frame is closed.

1. **Hold the camera as shown in the illustration.**



2. **Firmly holding the frame, carefully rotate the monitor screen panel.**

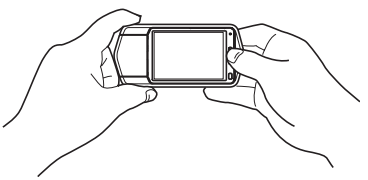
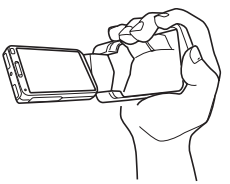
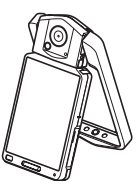
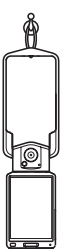


180 degrees clockwise

90 degrees counterclockwise

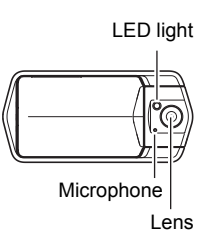
Camera Configurations

You can open the frame and rotate the monitor screen for a variety of different styles.

Normal Shooting	Movie Recording
Shoot with the monitor screen facing the opposite direction of the lens. 	Open the frame 90 degrees and hold the frame. You can also shoot with the camera upside down, if you like. 
Tabletop Shooting / Self-shooting	**Suspended Shooting**
Point the monitor screen and lens in the same direction and open the frame about 30 degrees so the camera can stand up. 	Rotate the monitor screen 180 degrees and then open the frame 180 degrees so it can be hung from a wall, etc. 

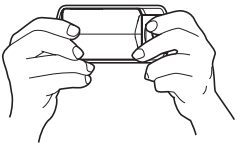
NOTE

- When shooting hold the camera still. Carefully press the shutter button and take care to avoid all movement as the shutter releases and for a few moments after it releases.
- Take care that your fingers and the strap do not cover any of the areas indicated in the illustration.
- To protect against accidentally dropping the camera, attach the wrist strap and make sure it is around your fingers or wrist while you are operating the camera.
- Never swing the camera around by its strap.
- The supplied strap is intended for use with this camera only. Never use it for any other purpose.



IMPORTANT!

- Take care to ensure that your finger is not blocking or is not too close to the LED light. Fingers can cause unwanted shadows when shooting.

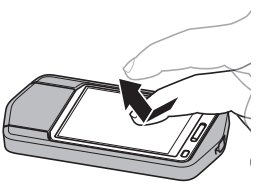


Using the Touch Panel

The monitor screen of the camera is a touch panel. This means you can perform the following operations by touching the screen with your fingers.

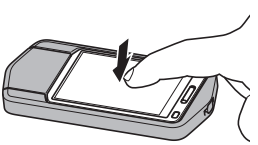
Touch

Momentarily touching the screen with your finger.
Touch the screen to select an icon or menu item, and to configure settings.



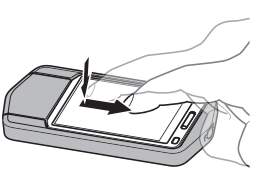
Touch-and-hold

Holding your finger against the screen.
Touch and hold the screen to scroll images at high speed, or to perform continual frame-by-frame playback of a movie.



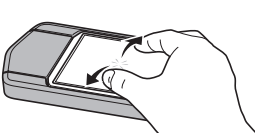
Drag

Holding your finger against the screen as you drag it up, down, left, or right.
Use drag to move a screen image to a different location, and to scroll between images.



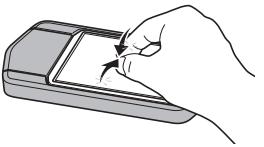
Spread

Holding your thumb and forefinger against the screen as you spread them out.
Use spread to enlarge the screen image.



Squeeze

Holding your thumb and forefinger against the screen as you bring them together.
Use squeeze to reduce the size of the screen image.

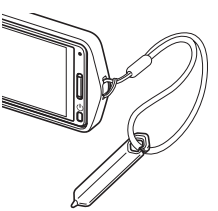


IMPORTANT!

- Use only your fingers or the stylus that comes with the camera to perform screen operations. Use of any other pointed or hard object can damage the screen. Also note that the stylus cannot be used to perform the two-finger operations described above.
- The touch panel is pressure-sensitive. Make sure you touch the panel with sufficient pressure when operating it.

NOTE

- Applying a commercially available LCD protective sheet will reduce the operation sensitivity of the monitor screen.
- If touch panel item selections are not performed as expected, calibrate the touch panel (page 99).
- The stylus can be attached to the camera's strap.



First, charge the battery prior to use.

The built-in rechargeable lithium ion battery of the camera is not charged when you purchase it. Perform the steps below to charge the battery before using the camera.

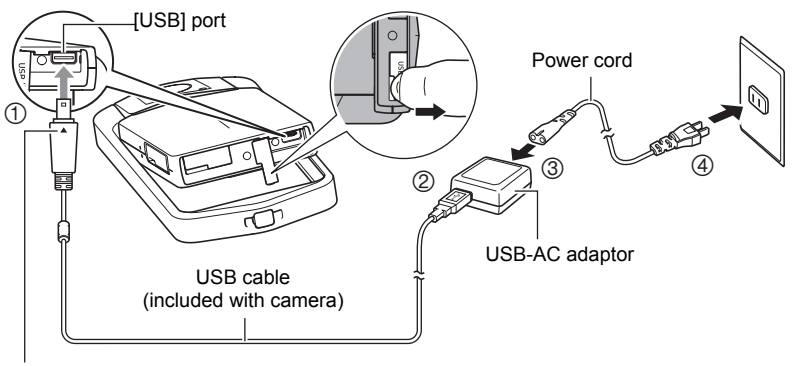
You can use either of the two following methods to charge the battery. Before charging the battery, use the procedure under “Opening and Closing the Frame” (page 14) to open the frame.

- USB-AC adaptor
- USB connection to a computer

■ To charge with the USB-AC adaptor

While the camera is turned off, connect in the sequence shown below (①, ②, ③, ④).

Charging time: Approximately 130 minutes.



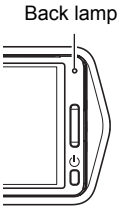
Making sure that the ▲ mark on the USB cable connector is towards the side opposite that of the monitor screen, connect the cable to the camera.

IMPORTANT!

- A battery that has not been used for a long time or ambient temperature extremes can cause charging to take longer than normal. If charging takes longer than about six hours, a timer will terminate it automatically, even if the battery is not fully charged. This is indicated by the back lamp flashing red. If the battery has not been used for a very long time, charging may be terminated automatically and the back lamp may start flashing red after only about 45 minutes. In either case, disconnect the USB cable from the camera and then reconnect it to resume charging.

Back Lamp Operation

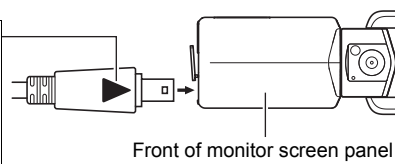
Lamp Status	Description
Lit Red	Charging
Flashing Red	Abnormal ambient temperature, USB-AC adaptor problem, or battery problem (page 111), or charging terminated by the timer
Off	Charging complete



USB Cable Connection Precautions

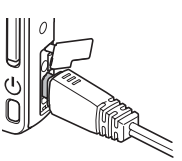
- When connecting the USB cable to the camera, make sure that the cable connector and monitor screen panel are oriented correctly as shown in the illustration below.

Make sure that the ▶ mark side of the USB cable connector and the front of the monitor screen panel (the side opposite that of the monitor screen) are facing in the same direction.



The back lamp always initially light after charging starts. Even if the battery is already fully charged, the lamp will light momentarily.
If the lamp does not light, check the orientation of the USB cable connector.

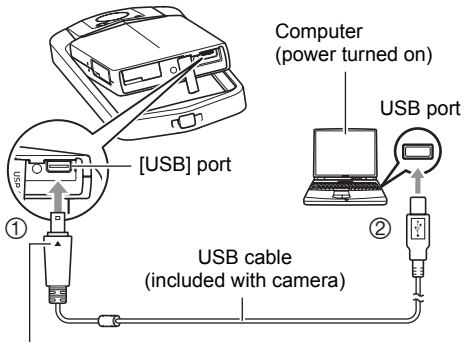
- Make sure that you insert the cable connector into the USB port until you feel it click securely into place. Failure to insert the connector fully can result in poor communication or malfunction.
- Note that even while the connector is fully inserted, you still will be able to see the metal part of the connector as shown in the illustration.



■ To charge using a USB connection to a computer

While the camera is turned off, connect in the sequence shown below (①, ②).

- If the camera is on, press [ON/OFF] (Power) to turn it off before connecting it to your computer.
  Charging time:
  Approximately 260 minutes.



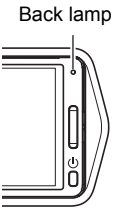
Making sure that the ▲ mark on the USB cable connector is towards the side opposite that of the monitor screen, connect the cable to the camera.

IMPORTANT!

- The first time you connect the camera to your computer with the USB cable, an error message may appear on your computer. If this happens, disconnect and then reconnect the USB cable.
- Some computer models or connection conditions can produce low supply capacity. If low supply capacity exists, charging will start without the camera turning on. This is indicated by the back lamp lighting red. The back lamp will go out in this case after charging is complete.
- A battery that has not been used for a long time or ambient temperature extremes can cause charging to take longer than normal. If charging takes longer than about six hours, a timer will terminate it automatically, even if the battery is not fully charged. This is indicated by the back lamp flashing red. If the battery has not been used for a very long time, charging may be terminated automatically and the back lamp may start flashing red or go out after only about 30 minutes to 45 minutes. In either case, use of the USB-AC adaptor that comes with the camera is recommended.
- Charging is not performed while the connected computer is in the hibernate mode.
- If low supply capacity exists due to your computer model or connection conditions, charging will start without the camera turning on. Turning on the camera in this case will cause charging to stop and enter USB data communication between the camera and the computer. The camera's back lamp will be lit green at this time.

Back Lamp Operation

Lamp Status	Description
Lit Amber	Charging
Lit Red	Charging in progress (Data transfer with computer not supported.)
Flashing Red	Abnormal ambient temperature, or battery problem (page 111), or charging terminated by the timer
Flashing Red and Amber	The battery is over-discharged. Battery charging over connection with a computer's USB port cannot be performed for some reason. Use the USB-AC adaptor that comes with the camera to charge the battery.
Lit Green	Charging complete, or charging stopped



NOTE

- Even if you turn off the camera, the battery will continue to charge if there is a USB connection with a computer. Under this condition, the back lamp operates as described under "Back Lamp Operation" (page 20).

Other Charging Precautions

- USB charging devices and power supply devices are subject to fixed standards. Use of an inferior device or a device that is not up to standard can cause malfunction and/or failure of your camera.
- Operation is not guaranteed in the case of a computer built or modified by you. Even in the case of a commercially available computer, certain USB port specifications may make it impossible to charge via the USB cable.
- A battery that is still warm due to normal use may not charge fully. Leave the camera turned off and wait for a while to give the battery time to cool before charging it.
- A battery discharges slightly. Because of this, it is recommended that you charge the battery immediately before you need to use it.
- Charging the battery may cause interference with TV and radio reception. If this happens, plug the USB-AC adaptor into an outlet that is further away from the TV or radio.
- Actual charging time depends on the current battery level and charging conditions.
- Do not use the USB-AC adaptor with any other device.

Checking the Current Battery Level

As battery power is consumed, a battery indicator on the monitor screen indicates its current level as shown below.

Level	High ← → Low			
Battery Indicator	→	→	→	
Indicator Color	Cyan →	Yellow →	Red →	Red

indicates battery power is low. Charge the battery as soon as possible. Recording is not possible when is indicated. Charge the battery immediately.

- The level shown by the battery indicator may change when you switch between the REC mode and PLAY mode.
- Leaving the camera for about 30 days with no power supplied while the battery is dead will cause its date and time settings to be cleared. A message telling you to configure time and date settings will appear the next time you turn on the camera after restoring power. When this happens, configure date and time settings (page 97).
- See page 127 for information about battery life and number of shots.

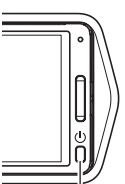
Configuring Basic Settings the First Time You Turn On the Camera

The first time you turn on the camera, a screen appears for configuring the display language, date, and time settings. Failure to set the date and time correctly will cause the wrong date and time data to be recorded with images.

IMPORTANT!

- A screen for language selection will not appear in step 2 of the procedure below if you purchased a camera intended for the Japanese market. To change the display language from Japanese in this case, use the procedure under “Specifying the Display Language (Language)” (page 98). Note that a version of this manual in the language you select may not be included with a camera intended for the Japanese market.
- Camera models sold in certain geographic areas may not support display language selection.

1. Press [⏻] (Power) to turn on the camera.



[⏻] (Power)

2. Drag (page 17) upwards and downwards until you find the language you want, and then touch to select it.

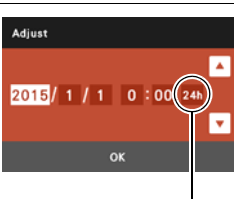
3. Touch the date display format you want.

Example: July 10, 2015
YY/MM/DD → 15/7/10
DD/MM/YY → 10/7/15
MM/DD/YY → 7/10/15

4. Touch the value you want to change (year, month, day, hour, minute).

5. Touch “▲” or “▼” to change the currently selected value.

- Touching and holding “▲” or “▼” will change the setting at high speed.
- To switch between 12-hour and 24-hour format, touch the 12/24 hour switch icon.



12/24 hour switch icon

6. When the date and time settings are the way you want, touch “OK”.

7. Touch “Auto” or “Premium Auto” to select the default auto recording mode you want.

8. Touch “Apply”.

- You will be able to change this setting later, if you want. See page 29 for details.

If you make a mistake configuring display language, date, or time settings with the above procedure, refer to the following pages for information about how to correct the settings.
– Display language: Page 98
– Date and time: Page 97

NOTE

- Each country controls its local time offset and the use of summer time, and so they are subject to change.

Preparing a Memory Card

Though the camera has built-in memory that can be used to store images and movies, you probably will want to purchase a commercially available memory card for greater capacity. The camera does not come with a memory card. Images recorded while a memory card is loaded are saved to the memory card. When no memory card is loaded, images are saved to built-in memory.

- For information about memory card capacities, see page 123.

Supported Memory Cards

– SD Memory Card
– SDHC Memory Card
– SDXC Memory Card

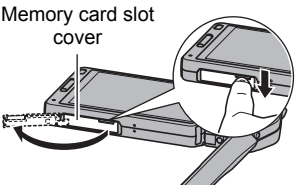
Use one of the above types of memory card.

- The above are supported memory card types as of October 2012.
- This camera supports use of SD memory cards of the following types and capacities: SD memory cards up to 2GB, SDHC memory cards from 2GB up to 32GB, SDXC memory cards from 32GB up to 2TB. Note that the ability to use any particular card with this camera, even if it satisfies the above capacity and type requirements, is not guaranteed.
- This camera supports use of Eye-Fi cards and FlashAir cards.

To load a memory card

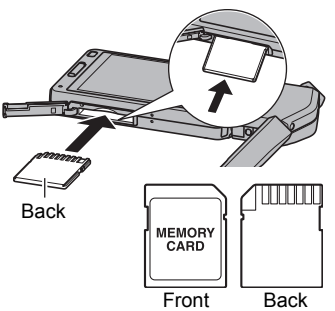
1. Press [⏻] (Power) to turn off the camera and then open the frame (page 14).

2. Hook your nail into the groove of the memory card slot cover and pull the cover in the direction indicated by the arrow to open it.

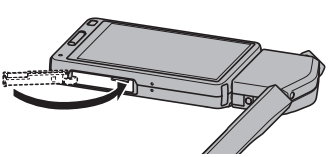


3. Load a memory card.

Positioning the memory card so its back is facing upwards (towards the monitor screen side of the camera), slide it into the card slot all the way in until you hear it click securely into place.



4. Close the memory card slot cover and then return the frame to its original position.



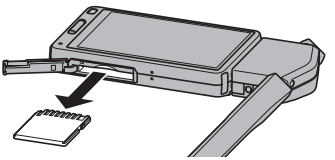
IMPORTANT!

- Never insert anything besides a supported memory card (page 25) into the memory card slot.
- Should water or any foreign object ever get into the card slot, immediately turn off the camera, and contact your retailer or nearest CASIO authorized service center.

■ To replace the memory card

Press the memory card and then release it. This will cause it to pop out of the memory card slot slightly. Pull the card out the rest of the way and then insert another one.

- Never remove a card from the camera while the back lamp is flashing green. Doing so can cause the image save operation to fail and even damage the memory card.



To format (initialize) a new memory card

Format a memory card on the camera before using it for the first time.

IMPORTANT!

- Formatting a memory card that already has snapshots or other files on it, will delete its contents. Normally you do not need to format a memory card again. However, if storing to a card has slowed down or if you notice any other abnormality, re-format the card.
- Be sure to use the camera to format a memory card. Formatting a card on a computer will result in a non-SD standard format, which can greatly slow down processing time and cause compatibility, performance, and other problems.
- Before formatting a new Eye-Fi card to use it for the first time, copy the Eye-Fi Center install files to your computer. Do this before formatting the card.
- Formatting a FlashAir card with the camera will delete files on the card that are required for communication. For details about formatting, see the instructions that come with the FlashAir card.

1. **Load a memory card (page 26).**

2. **Turn on the camera and then touch “MENU”.**

- If “MENU” is not displayed on the screen, touch the tab to display it (page 35).

3. **Drag upwards and downwards until you find “Setup”, and then touch it.**

4. **Touch “Format”.**

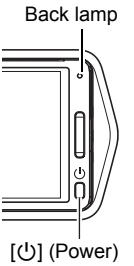
5. **Touch “Format” and then touch “Yes”.**

This starts the memory card format operation.

Turning Power On and Off

■ To turn on the camera

Press [⏻] (Power).
This will turn on the camera, which is indicated when the back lamp lights green, and enter the REC mode.



Entering the REC Mode and PLAY Mode

To enter the PLAY mode	In the REC mode, touch "▶" (PLAY). • If Auto, BEST SHOT, or ART SHOT is selected as the recording mode, you can also switch to the PLAY mode by touching the tab and then touching "▶" (PLAY).
To enter the REC mode	In the PLAY mode, touch the tab. On the screen image that appears, touch "📷" (REC).

Screen after tab is touched

■ To turn off the camera

Press [⏻] (Power).

NOTE

- To conserve battery power, an Auto Power Off function will turn off power automatically if you do not perform any operation for about five minutes.

To Shoot a Snapshot

Your camera has a variety of different recording modes to suit various shooting conditions and objectives (page 36). This section explains general shooting procedures using the auto recording mode.

Selecting an Auto Recording Mode

You can select one of two auto recording modes (Auto or Premium Auto) according to your digital imaging needs.

Setting	REC Screen Icon Display	Description
Auto		This is the standard Auto recording mode.
Premium Auto		With Premium Auto recording, the camera automatically determines whether you are shooting a subject or scenery, and other conditions. Premium Auto recording delivers higher image quality than standard Auto recording. • It also requires more power (and runs down the battery quicker) than Auto.

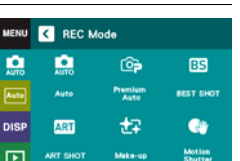
1. Press [⏻] (Power) to turn on the camera.

2. Touch the second icon from the top (second icon from the right in the case of landscape display orientation) (Recording mode).

If the icon is not displayed on the screen, touch the tab to display it.

Recording mode icon

3. Touch "Auto" or "Premium Auto" to select the auto recording mode you want.



To shoot a snapshot

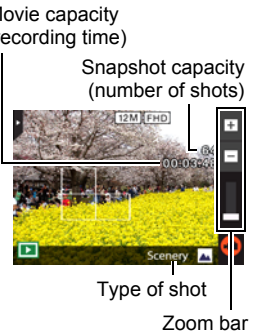
1. Point the camera at the subject.

If you are using Premium Auto, text will appear in the lower right corner of the monitor screen describing the type of shot the camera has detected.

- Touch the "+" or "–" mark on the top of the zoom bar to change the zoom factor (page 41).

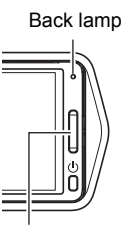
– (Wide Angle)

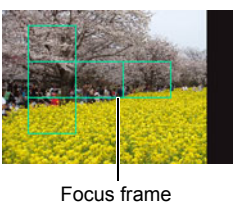
+ (Telephoto)



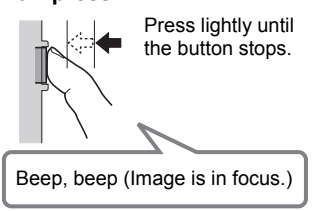
2. Half-press the shutter button to focus the image.

When focus is complete, the camera will beep, the back lamp will light green, and the focus frame will turn green.





Half-press

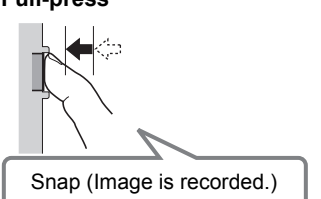


When you half-press the shutter button, the camera automatically adjusts exposure and focuses on the subject it is currently pointed at. Mastering how much pressure is required for a half-press and a full-press of the shutter button is an important technique for good-looking images.

3. Continuing to keep the camera still, press the shutter button the rest of the way down.

This records the snapshot.

Full-press



Recording a Movie

Touch "" (Movie) to start movie recording. Touch "" (Movie Stop) to stop recording.
See page 44 for details.

"" (Movie)/
"" (Movie Stop)

NOTE

- You also can shoot a snapshot by touching a point on the monitor screen (page 56).
- You can specify the image size for snapshots. See page 58 for more information.

■ If the image does not focus...

If the focus frame stays red and the back lamp is flashing green, it means that the image is not in focus (because the subject is too close, etc.). Re-point the camera at the subject and try to focus again.

■ Shooting with Auto

"Focus lock" (page 64) is the name of a technique you can use when you want to shoot an image in which the subject to be focused on is not within the focus frame in the center of the screen.

■ Shooting with Premium Auto

- In addition to shutter speed and ISO sensitivity, the camera automatically executes the following operation as required when shooting with Premium Auto.
  - Auto Focus is normally performed until you half-press the shutter button.
  - The camera automatically determines the focus point on the screen and focuses there.
  - When shooting people, the face detection feature detects the faces of up to ten individuals and adjusts focus and brightness accordingly.
- When shooting with Premium Auto, the message "Processing Premium Auto." may appear on the monitor screen. If you feel the camera is taking too long to process data, try shooting with standard Auto instead.
- In some cases, Premium Auto may not be able to interpret the shooting environment correctly. If this happens, shoot with standard Auto.

Viewing Snapshots

Use the following procedure to view snapshots on the camera's monitor screen.

- For information about how to play back movies, see page 65.

1. Touch "▶" (PLAY) to enter the PLAY mode.

This will display one of the snapshots currently stored in memory.

- Information about the displayed snapshot also is included (page 10).
- You also can clear the information to view only the snapshot (page 11).
- You can zoom the screen image by touching the monitor screen (page 70).
  If you are recording a snapshot that is very important to you, it is recommended that you zoom the image and check its details after recording it.

"▶" (PLAY)

2. Touch "<" or ">", or drag left or right across the screen image to scroll through the snapshots.

- To scroll at high speed, touch and hold "<" or ">".

NOTE

- Pressing the shutter button while in the PLAY mode or while a menu screen is displayed will switch directly to the REC mode.

Deleting Snapshots and Movies

If memory becomes full, you can delete snapshots and movies you no longer need in order to free up storage and record more images.

IMPORTANT!

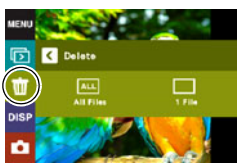
- Remember that a file (image) delete operation cannot be undone.

■ To delete a single file

1. In the PLAY mode, touch "<" or ">" to display the file you want to delete.

2. Touch "🗑".

- If "🗑" is not displayed on the screen, touch the tab to display it.



3. Touch "1 File".

This will delete the selected image.

■ To delete all files

1. Enter the PLAY mode.

2. Touch "🗑".

- If "🗑" is not displayed on the screen, touch the tab to display it.

3. Touch "All Files".

4. Touch "Delete".

This will cause the message "There are no files." to appear.

Snapshot Shooting Precautions

Operation

- If unwanted light is shining onto the lens, shade the lens with your hand when shooting an image.

Monitor Screen when Shooting Snapshots

- Subject brightness conditions can cause monitor screen response to slow and can cause digital noise in the monitor screen image.
- The image that appears on the monitor screen is for image composition. The actual image will be recorded in accordance with the currently selected recording mode (page 36).

Shooting Indoors under Fluorescent Lighting

- Minute flickering of fluorescent lighting can affect the brightness or color of an image.

Other Precautions

- The slower the shutter speed, the greater the possibility that noticeable noise will be generated in an image. Because of this, the camera automatically performs a noise reduction at slow shutter speeds. The noise reduction process causes it to take longer to record images at lower shutter speeds. The shutter speeds for which noise reduction is performed depend on the camera setup and shooting conditions.
- A noise reduction process is performed when ISO sensitivity is set to a high value. This can cause the camera to take relatively longer to be ready to shoot again after you press the shutter button. Do not perform any operation while the image recording operation is in progress.
- Due to the characteristics of the imaging element used by the camera, very fast moving objects in an image may appear distorted.

■ Auto Focus Restrictions

- Any of the following can make proper focus impossible.
  - Solid color wall or other very low contrast subject
  - Strongly back lit subject
  - Very shiny subject
  - Blinds or other subject with a repeating horizontal pattern
  - Multiple subjects at varying distances from the camera
  - Subject in a dark location
  - Camera movement while shooting
  - Fast-moving subject
  - Subjects outside the focus range of the camera
- If you cannot focus properly, try using focus lock (page 64).

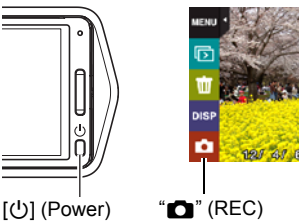
Recording Images

Touching the monitor screen in the REC mode will display a screen for configuring REC mode settings.

■ To configure REC mode settings

1. **Press [⏻] (Power) to turn on the camera and enter the REC mode.**

- If the camera is in the PLAY mode, touch "📷" (REC) to enter the REC mode.



2. **Touch the item whose setting you want to change.**

- If there are no icons along the left side of the screen, touch the tab to display them.

❶ Tab (page 28)
❷ Menu (page 55)*
❸ Recording mode (page 36)
❹ Screen orientation (page 11)
❺ Information (page 11)
❻ PLAY mode/Make-up Level (pages 28, 39)
❼ Zoom (page 41)
❽ Movie (page 44)

* Depending on the recording mode, some of the items on the menu that appears may not be usable.

Selecting a Recording Mode

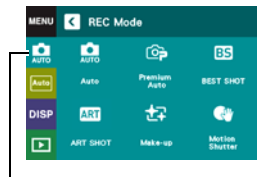
The camera has a variety of different recording modes.

1. In the REC mode, touch the recording mode icon (page 29).

- If the icon is not displayed on the screen, touch the tab to display it.

2. Touch the icon of the recording mode you want to use.

This enters the selected recording mode.



Recording mode icon

Auto	Standard Auto recording mode. This is the mode normally used for shooting (page 29).
Premium Auto	With Premium Auto recording, the camera automatically determines whether you are shooting a subject or scenery, and other conditions. Premium Auto recording delivers higher image quality than standard Auto recording mode (page 29).
BEST SHOT	With BEST SHOT, simply select the sample scene that resembles the type of shot you want, and the camera automatically configures ideal settings for the subject and shooting conditions (page 47).
ART SHOT	A variety of artistic effects help to make even common, ordinary subjects become more novel and exciting (page 37).
Make-up	Make-up smoothes the skin texture of the subject and softens facial shadows caused by harsh sunlight for better looking portraits (page 39).
Motion Shutter	In this mode, the camera starts a self-timer countdown when it detects subject movement (page 40).

Shooting with Artistic Effects (ART SHOT)

A variety of artistic effects help to make even common, ordinary subjects become more novel and exciting.

Scene	Description
HDR Art	Applies HDR (High Dynamic Range, page 49) photography to transform snapshots into works of art that provide a greater degree of expression than conventional imaging.
Toy Camera	Darkens the periphery and changes hues for a toy camera effect.
Soft Focus	Blurs overall focus for a mysteriously soft effect.
Light Tone	Weakens contrast to create an elegantly subdued effect.
Pop	Strengthens saturation for richer colors.
Sepia	Sepia colors are used to create a retro effect.
Monochrome	Enhances contrast to create a grainy print effect.
Miniature	Blurs some of the focus to make the image look like a miniature.
Fisheye	Humorous effect that looks like it was shot with a fisheye lens.

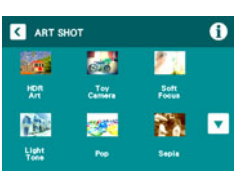
1. **In the REC mode, touch the recording mode icon (page 35).**

2. **Touch "ART" (ART SHOT).**

3. **Touch the ART SHOT scene you want to use.**

Select from among: HDR Art, Toy Camera, Soft Focus, Light Tone, Pop, Sepia, Monochrome, Miniature, Fisheye.

- Touch the arrow on the right side of the monitor screen to display another scene.
- Touching " ⓘ " in the upper right corner of the screen and then touching a ART SHOT scene will display detailed information about the scene.



4. Touch the “ART” icon.

The intensity of the selected effect can be adjusted as described below. Note, however, that the “Miniature” effect cannot be adjusted.

Scene	Adjustment
HDR Art	Effect level
Toy Camera	Hue
Soft Focus	Effect level
Light Tone	Hue
Pop	Effect level
Sepia	Effect level
Monochrome	Effect level
Fisheye	Effect level

5. Touch the level you want to select.

6. Touch “OK”.

7. Press the shutter button to shoot.

- After you press the shutter button, the message “Busy... Please wait...” will appear on the monitor screen to indicate that recording is in progress. Keep the camera still while this message is displayed. The recording process takes some time to complete after the message appears. Image shooting is disabled while the message is displayed.

NOTE

- This function works best when the camera is made stationary by placing it on a level surface, etc.
- With the HDR Art scene, the settings below are configured automatically.
  – LED light: Off
  – Focus mode: Auto Focus
- Shooting with this REC mode makes the shooting range narrower than normal.
- The desired effect may not be attained if the camera or subject moves during shooting.
- Depending on shooting conditions and image composition, this REC mode may not be able to produce the desired result.

Recording Beautiful Portraits (Make-up)

Make-up smoothes the skin texture of the subject and softens facial shadows caused by harsh sunlight for better looking portraits.

1. **In the REC mode, touch the recording mode icon (page 29).**
2. **Touch “” (Make-up).**
3. **Touch the tab.**
4. **Touch “” (Make-up Level).**
5. **Touch the level you want to select.**
   You can select one of 12 different make-up levels for the effect you want. A larger number applies a stronger make-up effect.

6. **Touch “OK”.**
7. **Press the shutter button to shoot.**

NOTE

- Note that Make-up can be used even when the recording mode is Premium Auto or Motion Shutter. In either of these recording modes, perform steps 3 through 7 of the above procedure to select the Make-up level you want.

Using Motion Shutter to Trigger a Self-timer Operation (Motion Shutter)

With Motion Shutter the camera automatically triggers a self-timer countdown whenever it detects subject movement within a framed area you specify on the monitor screen. This means you can control operation of the self-timer from a distance by waving your hand, so you can include yourself in the image being shot.

1. **In the REC mode, touch the recording mode icon (page 29).**

2. **Touch "" (Motion Shutter).**

3. **Drag "" to the location in the image where you want movement to be detected.**

4. **When everything is ready, press the shutter button all the way down.**
Motion Shutter will go into standby to wait for trigger movement.

5. **Facing the camera, move your hand or perform some other movement in the area of the icon you positioned in step 3.**
When the camera detects subject movement within the framed area, it will automatically start a self-timer countdown. The camera will shoot an image when the countdown reaches zero, and then go back into Motion Shutter standby to wait for the next trigger movement.

NOTE

- The trigger time of the Motion Shutter self-timer is fixed at two seconds.
- Motion Shutter exits standby automatically after it shoots six images.
- To cancel Motion Shutter standby at any time, press the shutter button.
- Motion Shutter may not operate properly when there is little difference in the color of the subject and the color of the background enclosed by the boundary, or when the subject is located far away from the camera, making it too small.

Shooting with Zoom

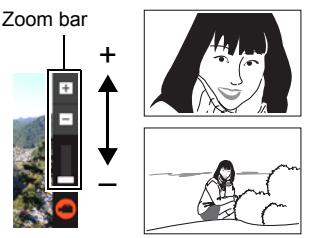
Your camera is equipped with various types of zoom: HD Zoom, SR Zoom, and digital zoom. The maximum zoom factor depends on the image size setting.

HD Zoom	Allows greater zoom capabilities by cutting out a portion of the original image and enlarging it, without deterioration of image quality.
SR Zoom	Applies super resolution technology to suppress image deterioration.
Digital zoom	A digital process is used to enlarge the center of the image, so there is deterioration of image quality.

1. **In the REC mode, touch the "+" or "–" mark on the top of the zoom bar to zoom.**

+ (Telephoto):
Enlarges the subject and narrows the range.

– (Wide Angle):
Reduces the size of the subject and broadens the range.



2. **Press the shutter button to shoot the image.**

NOTE

- Telephoto images are prone to blurring caused by camera movement when you press the shutter button. Because of this, stabilizing the camera by placing it on a level surface, etc. is recommended.
- Zoom operations are disabled during high speed movie recording. Perform the zoom operation before you touch "" (Movie) to start recording.
- Zoom operations are not supporting during Slide Panorama shooting. The zoom setting is fixed at full wide angle.
- "⊕" is displayed on the monitor screen while digital zoom is being used.

■ Zoom Factor

- The image deterioration point depends on the image size (page 58) and recording mode (page 36). The smaller the image size, the higher the zoom factor you can use before reaching the image deterioration point.

Auto, Premium Auto, Motion Shutter

Image Size	Undeteriorated Zoom Limit	Maximum Zoom Factor
12M	1.5X	4.0X
3:2		
5M	2.3X	6.2X
VGA	9.4X	15.9X

BEST SHOT (Premium Zoom)

Image Size	Undeteriorated Zoom Limit	Maximum Zoom Factor
12M	2.0X	4.0X
3:2		
5M	3.0X	6.2X
VGA	9.8X	15.9X

ART SHOT, BEST SHOT (excluding “Premium Zoom”)

Image Size	Undeteriorated Zoom Limit	Maximum Zoom Factor
12M	1.0X	4.0X
3:2		
5M	1.6X	6.2X
VGA	6.2X	15.9X

Shooting a Self-portrait

You can configure the camera so the monitor screen and lens are facing in the same direction. This means you can shoot with the self-timer as you compose the self-portrait on the monitor screen.

- When using the self-timer to shoot a self-portrait, select “Auto” or “Premium Auto” for the recording mode.

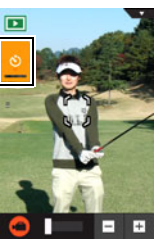
1. **Rotate the monitor screen panel so the screen is facing in the same direction as the lens (page 14).**

2. **Select “Auto” or “Premium Auto” for the recording mode (page 29).**

3. **Drag “” (Self-timer) downwards to specify the self-timer countdown duration.**

The camera will shoot an image when the countdown reaches zero.

- You can set a self-timer countdown duration within the range of two to ten seconds. The further you drag, the longer the duration.
- To cancel an ongoing countdown, touch anywhere on the screen except where the self-timer icon is displayed.
- Pressing the shutter button during an ongoing countdown will cancel the countdown and shoot an image.



“” (Self-timer)

To record a movie

The following procedure explains how to record a movie.

- You can record a movie while one of the following recording modes is selected.
  - Auto
  - Premium Auto
  - BEST SHOT (High Speed Night Scene)

1. In the REC mode, touch "MENU".

- If "MENU" is not displayed on the screen, touch the tab to display it.

2. Drag upwards and downwards until you find "Movie Quality", and then touch to select it.

3. Touch the item whose setting you want to change.

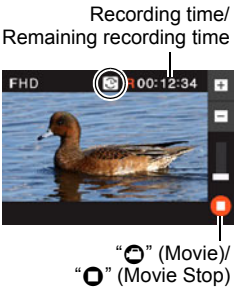
Movie Quality	REC Screen Icon Display	Frame Rate	Image Size (Pixels)	Description
Full HD	FHD	30fps	1920×1080	Select this setting to record full high-definition (Full HD) movies. The aspect ratio of movies recorded with this setting is 16:9.
HD	HD	30fps	1280×720	Select this setting to record high-definition (HD) movies. The aspect ratio of movies recorded with this setting is 16:9.
HS240	HS	240fps	512×384	Select this setting to record high speed movies at a speed of 240 fps. • Audio is not recorded.

4. To close the menu screen, touch "MENU" or press the shutter button.

5. Touch “” (Movie).

This will start recording.

- Monaural audio is also recorded during movie recording while “Full HD” or “HD” is selected for the movie quality setting.
- Touching “” while recording is in progress will cause the remaining recording time and “R” to appear. Touch “” again to switch back to the elapsed recording time.
- When “Full HD” or “HD” is selected as the movie quality, you can perform a zoom operation while recording is in progress by touching the “+” or “–” mark on the top of the zoom bar.
- When “Macro” is selected as the movie focus mode (page 63), you can half-press the shutter button before starting recording to focus.



6. Touch “” (Movie Stop) to stop recording.

- Each movie can be up to 29 minutes long. Movie recording stops automatically after 29 minutes of recording. Movie recording also will stop automatically if memory becomes full before you stop movie recording.

Minimizing the Effects of Camera Movement during Movie Recording

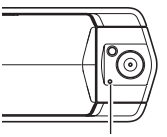
You can configure the camera to minimize the effects of camera movement during Full HD and HD movie recording. Note, however, that this does not prevent image blur due to subject movement.

High Speed Movie Recording Precautions

- When shooting a high speed movie, shoot in a well-lit environment.
- When recording a high speed movie, light source flicker can cause horizontal bands to appear in the image. This does not indicate malfunction of the camera.

IMPORTANT!

- Spending a long time using movie recording will cause the camera to become slightly warm to the touch. This is normal and does not indicate malfunction.
- The camera also records audio along with Full HD and HD movies. Note the following points when shooting a movie.
  – Take care that the microphone is not blocked by your fingers, etc.
  – Good audio recording results are not possible when the camera is too far away from what you are trying to record.



Microphone

- Shooting movies for long periods in areas where temperature is relatively high can cause digital noise (dots of light) to appear in the movie image. A rise in the camera's internal temperature also may force movie recording to stop automatically. If this happens, stop recording and allow the camera to cool down, which should cause normal operation to resume.
- Using the camera's built-in memory or certain types of memory cards can slow down processing speed. Whenever possible use an Ultra High-Speed Type memory card. Note, however, that not all operations can be guaranteed even if an Ultra High-Speed Type memory card is used. Certain movie quality settings can result in too much time being required to record data, which can result in breaks in the image and/or audio during playback. If this happens, the movie icon will turn yellow on the monitor screen.

NOTE

- Except for High Speed Movie, zoom operations are supported during movie recording (page 41). Zoom is disabled during high speed movie recording. If you want to use zoom, perform the zoom operation before you touch "🎥" (Movie) to start recording.
- SR Zoom (page 41) is disabled during movie recording.
- The effects of camera movement in an image become more pronounced when you shoot close up or with a large zoom factor. Because of this, stabilizing the camera by placing it on a level surface, etc. is recommended.
- During High Speed Movie recording, focus is fixed at the position where it was when recording started. To focus an image, half-press the shutter button for Auto Focus before you touch "🎥" (Movie) to start recording.

Using BEST SHOT

BEST SHOT provides you with a collection of sample “scenes” that show a variety of different types of shooting conditions. When you need to change the setup of the camera, simply find the scene that matches what you are trying to achieve, and the camera sets up for it automatically. This helps to minimize the chance of ruined images due to poor exposure and shutter speed settings.

■ To shoot an image with BEST SHOT

1. In the REC mode, touch the recording mode icon (page 29).

- If the icon is not displayed on the screen, touch the tab to display it.

2. Touch “BS” (BEST SHOT).

This will display a menu of BEST SHOT scenes.

3. Touch the scene you want to select.

- Touching “ ⓘ ” in the upper right corner of the screen and then touching a BEST SHOT scene will display detailed information about the scene.

4. Press the shutter button (if you are shooting a snapshot) or touch “ ” (Movie) (if you are shooting a movie).

■ BEST SHOT Precautions

- BEST SHOT scene images were not shot using this camera.
- Images shot using a BEST SHOT scene may not produce the results you expected due to shooting conditions and other factors.
- You can modify the camera settings that are configured after you select a BEST SHOT scene. Note, however, that the BEST SHOT settings revert to their defaults when you select another BEST SHOT scene or turn off the camera.
- Movie recording is supported only while “High Speed Night Scene” is selected. Selecting “HS240” for the movie quality setting while the “High Speed Night Scene” BEST SHOT scene is selected will cause the camera to record movies using the auto recording mode.

Shooting Clearer Snapshots (Multi SR Zoom)

Multi SR Zoom uses super-resolution technology and multiple Continuous Shutter (CS) images for higher quality and clarity across the entire image. For information about the zoom factor, see page 42.

- When shooting with Multi SR Zoom, the camera may require more time for image data processing between shots.

1. In the REC mode, touch "ES" (BEST SHOT).

2. Touch "Premium Zoom" scene.

3. Press the shutter button to shoot.

- After you press the shutter button, the message "Busy... Please wait..." will appear on the monitor screen to indicate that recording is in progress. Keep the camera still while this message is displayed. The recording process takes some time to complete after the message appears. Image shooting is disabled while the message is displayed.

NOTE

- Multi SR Zoom is effective when you want to capture delicate textures.
- With this BEST SHOT scene, the LED light setting automatically becomes off.
- Shooting with this BEST SHOT scene makes the shooting range narrower than normal.
- The desired Multi SR Zoom effect may not be attained if the camera or subject moves during shooting.
- Depending on shooting conditions and image composition, this BEST SHOT scene may not be able to produce the desired result.

Digitally Correcting for Overexposure and Underexposure (HDR)

With HDR (High Dynamic Range), the camera shoots a series of CS images using different exposure settings and combines them into a final image to correct for overexposure or underexposure of subjects of different brightness levels.

1. **In the REC mode, touch "BS" (BEST SHOT).**

2. **Touch "HDR" scene.**

3. **Press the shutter button to shoot.**

- After you press the shutter button, the message "Busy... Please wait..." will appear on the monitor screen to indicate that recording is in progress. Keep the camera still while this message is displayed. The recording process takes some time to complete after the message appears. Image shooting is disabled while the message is displayed.

NOTE

- This function works best when the camera is made stationary by placing it on a level surface, etc.
- With this BEST SHOT scene, the LED light setting automatically becomes off.
- Shooting with this BEST SHOT scene makes the shooting range narrower than normal.
- The desired HDR effect may not be attained if the camera or subject moves during shooting.
- Depending on shooting conditions and image composition, this BEST SHOT scene may not be able to produce the desired result.

Shooting with High Speed Night Scene (High Speed Night Scene)

With High Speed Night Scene, the camera automatically detects shooting conditions. When you press the shutter button, the camera will record a burst of images and merge them in a way that minimizes image blur due to low light conditions.

1. **In the REC mode, touch "BS" (BEST SHOT).**

2. **Touch "High Speed Night Scene" scene.**

3. **When you are ready to shoot, press the shutter button.**

- After you press the shutter button, the message "Busy... Please wait..." will appear on the monitor screen to indicate that recording is in progress. Keep the camera still while this message is displayed. The recording process takes some time to complete after the message appears. Image shooting is disabled while the message is displayed.

NOTE

- With this BEST SHOT scene, the LED light setting automatically becomes off.
- When holding the camera by hand while shooting with this BEST SHOT scene, make sure that the subjects remain as still as possible as the camera shoots the series of images.
- Shooting with this BEST SHOT scene makes the shooting range narrower than normal.
- Movement of the camera while it is placed on a surface may cause erroneous judgment that it is hand held.
- If surroundings are extremely dark when shooting with "High Speed Night Scene", the camera may not be able to shoot at proper brightness due to insufficient exposure.
- When shooting with this BEST SHOT scene, the ISO sensitivity setting is fixed at "AUTO".

Shooting with High Speed Anti Shake (High Speed Anti Shake)

A single press of the shutter button causes the camera to record multiple images and automatically combine them, which reduces image blur due to camera movement.

1. In the REC mode, touch "BS" (BEST SHOT).

2. Touch "High Speed Anti Shake" scene.

3. When you are ready to shoot, press the shutter button.

- After you press the shutter button, the message "Busy... Please wait..." will appear on the monitor screen to indicate that recording is in progress. Keep the camera still while this message is displayed. The recording process takes some time to complete after the message appears. Image shooting is disabled while the message is displayed.

NOTE

- With this BEST SHOT scene, the LED light setting automatically becomes off.
- Shooting with this BEST SHOT scene makes the shooting range narrower than normal.
- High Speed Anti Shake may not operate properly resulting in blurred images if the camera is moved more than the allowable range or if the subject moves during shooting.
- When shooting with this BEST SHOT scene, the ISO sensitivity setting is fixed at "AUTO".

Shooting with Priority on Subject Faces (High Speed Best Selection)

With High Speed Best Selection, the camera automatically shoots a series of images, and selects the best one based on facial image blur, and facial expression (whether the subject is smiling or blinking).

1. In the REC mode, touch "BS" (BEST SHOT).

2. Touch "Best Selection" scene.

3. Press the shutter button to shoot.

- This will cause the message "Busy... Please wait..." to appear. Do not move the camera while this message is displayed. The recording process takes some time to complete after the message appears.

NOTE

- With this BEST SHOT scene, the LED light setting automatically becomes off.
- Shooting with this BEST SHOT scene makes the shooting range narrower than normal.
- If one or more of the faces are blurred in all of the images that are shot, they will be blurred in the final image as well.
- The following conditions may make it impossible for the camera to determine if the subject is blinking or smiling. This may result in a final image in which the subject is blinking or not smiling.
  - Faces that are partially or completely darkened by shadows, etc.
  - Hair that is hiding or near the eyes
  - Eye glasses
  - Small faces
  - Faces that are not looking directly at the camera
- Shooting a large group of people will cause processing of the image after shooting to take longer.

Shooting a Panorama Image (Slide Panorama)

With Slide Panorama, you move the camera to compose and record multiple images, which are then combined to a panorama. This feature lets you shoot a panorama which is dramatically greater than the physical capabilities of the lens.

- The final panorama image can be one of the two sizes shown below.
  Slide Direction is Right or Left: Maximum 11520×1080 pixels
  Slide Direction is Up or Down: Maximum 1920×7296 pixels
- Zoom operations are not supporting during Slide Panorama shooting. The zoom setting is fixed at full wide angle.
- You can shoot a panorama image for approximately 360 degrees horizontally, or approximately 180 degrees vertically.

1. In the REC mode, touch "BS" (BEST SHOT).

2. Touch "" (Slide Panorama) scene.

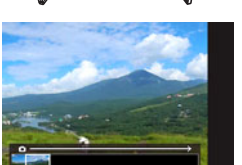
3. Touch the icon for the slide direction (the direction the camera will move while shooting).

You can select one of four different slide directions: " → " (right), " ← " (left), " ↑ " (up), " ↓ " (down).

4. Point the camera at the start of the panorama and half-press the shutter button to allow the camera to focus automatically.

5. Press the shutter button the rest of the way down and a slide cursor will appear on the monitor screen. Slowly move the camera in the direction indicated by the arrow on the screen until the slide cursor reaches the other end of its movement range (i.e. all the way to the right when moving the camera to the right).

- The camera will start composing the panorama image internally when the slide cursor reached the other end of the movement range.



Slide cursor

- Image composing also will start automatically if you stop moving the camera during panorama shooting. After you stop moving the camera, the message “Busy... Please wait...” appears as the camera processes the image. Wait until this message disappears before using the camera. Image shooting is disabled while the message is displayed.

NOTE

- The following conditions are not compatible with Slide Panorama shooting.
  - Subject whose brightness is very different from that of its surroundings due to artificial light, sunlight, etc.
  - Rivers, waves, waterfalls, or other subject with constantly changing patterns
  - Sky, beach, or other subject with continuous patterns
  - Camera too close to the main subject
  - Moving subject
  - Dark surroundings
- Slide Panorama may stop part way through in the following cases.
  - Subject or camera movement
  - Camera movement that is too fast or too slow
- Shooting a Slide Panorama image after half-pressing the shutter button to perform Auto Focus may not produce the desired results if there are considerable differences in the brightness, color, and/or focus of the individual images. If this happens, try changing the focus position by focusing on a different subject, etc.
- Since a Slide Panorama image is created by joining multiple images together, there may be some roughness at the point where two images are joined.
- Shooting under a flickering light source (such as fluorescent lighting) may result in uneven brightness and/or coloring in the final Slide Panorama image.
- The exposure and white balance when shooting Slide Panorama images are fixed at the levels measured when you half-press the shutter button at the beginning of the operation.
- With this BEST SHOT scene, the LED light setting automatically becomes off.

Advanced Recording Settings

The following are menu operations you can use to configure various camera settings.

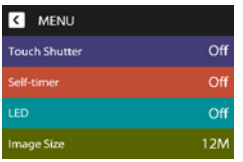
Using the REC Menu

■ Example Menu Screen Operation

1. In the REC mode, touch "MENU".

This will display the menu screen.

- If "MENU" is not displayed on the screen, touch the tab to display it.
- Menu contents are different in the REC mode and PLAY mode.



2. Drag upwards and downwards until you find the item whose setting you want to change.

3. Touch the item.

4. Configure the setting of the item in accordance with the screen contents.

- To cancel and exit the menu, touch "MENU" or press the shutter button.

NOTE

- Some menu items may not be available, depending on the recording mode being use.

■ Menu Operations in This Manual

Menu operations are represented in this manual as shown below. Touch the indicated icons and items, and perform operations as they are indicated, from left to right.

Procedure

Enter the "REC Mode" → MENU → Touch Shutter

Using Touch Shutter (Touch Shutter)

Procedure

Enter the "REC Mode" → MENU → Touch Shutter

You can use the procedure below to shoot a snapshot.

1. **Touch "On".**

2. **Point the camera at the subject.**

3. **When you want to shoot, touch the monitor screen.**

The camera automatically comes into focus and then shoots.

- You can still use the shutter button to shoot even when "On" is selected for Touch Shutter.

NOTE

- When "Auto" is selected as the recording mode, the camera will automatically focus on the point you touch.
- When "Premium Auto" is selected as the recording mode, the camera will automatically determine the optimum focus point(s) and focus automatically.

Using the Self-timer (Self-timer)

Procedure

Enter the "REC Mode" → MENU → Self-timer

With the Self-timer, pressing the shutter button starts a timer. The shutter is released and the image is shot after a fixed amount of time.

Setting	REC Screen Icon Display	Description
10 sec		10-second Self-timer
2 sec		2-second Self-timer • When shooting under conditions that slow down the shutter speed, you can use this setting to prevent image blur due to camera movement.
Off	None	Self-timer is disabled.

- You can interrupt an ongoing Self-timer countdown by pressing the shutter button.

NOTE

- The Self-timer configured with the above menu cannot be used under the following conditions.
  – Slide Panorama (page 53)
  – Motion Shutter (page 40)
  – When the monitor screen and lens are facing in the same direction

Using the LED Light (LED)

Procedure

Enter the "REC Mode" → MENU → LED

Use the LED light when shooting where lighting is dim. The effectiveness of the LED light is reduced the further you are from the subject.

Setting	REC Screen Icon Display	Description
Auto		LED lights automatically under dark shooting conditions.
On		LED always lights.
Off	None	LED never lights.

IMPORTANT!

- Do not turn on the LED light near a person's eyes and do not allow anyone to look directly into the light.
- You should compose the image so the main subject is in the center of the image when using the LED light.
- Since the camera is equipped with a wide-angle lens, the center tends to be brighter while the periphery tends to be darker.

Changing the Image Size (Image Size)

Procedure

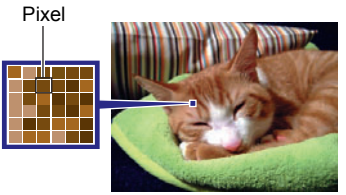
Enter the "REC Mode" → MENU → Image Size

This setting can be used to configure snapshot image size.

Image Size (Pixels)	REC Screen Icon Display	Suggested Print Size and Application	Description
12M (4000×3000)		Poster Print	Good detail for better clarity even for images cropped from the original on a computer, etc.
3:2 (4000×2656)		Poster Print	
5M (2560×1920)		A4 Print	Good detail
VGA (640×480)		E-Mail	Image files are smaller, which is better when attaching images to e-mail. However, images are relatively coarser.

- The initial factory default image size setting is 12M (12 million pixels).
- Selecting "3:2" records images with an aspect ratio of 3:2, which matches the standard aspect ratio of print paper.
- You should regard the print paper sizes suggested here as guidelines only (200 dpi print resolution).

■ Pixels and image size



A digital camera image is a collection of small dots called “pixels”. The more pixels there are in an image, the more detail there will be. However, you generally can do with fewer pixels when printing an image (L size) through a print service, attaching an image to e-mail, when viewing the image on a computer, etc.
The size of an image indicates how many pixels it contains, and is expressed as horizontal pixels×vertical pixels.

Example:

Image size	pixels
12M	4000×3000 (Approximately 12 million pixels)
5M	2560×1920 (Approximately 5 million pixels)

- Note that larger images have more pixels, so they take up more memory space.
- For information about image size and number of images that can be stored, see page 123.
- For information about movie image size, see page 44.
- For information about resizing existing snapshots, see page 77.

Movie Image Quality Settings (Movie Quality)

Procedure

Enter the “REC Mode” → MENU → Movie Quality

This setting can be used to configure movie image quality settings and to select either normal movie recording or High Speed Movie recording. For information about movie image quality settings, see page 44.

Correcting Image Brightness (EV Shift)

Procedure

Enter the "REC Mode" → MENU → EV Shift

You can manually adjust an image's exposure value (EV value) before shooting it.

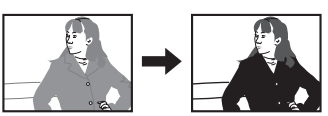
- Exposure Compensation Range: –2.0 EV to +2.0 EV
- Unit: 1/3 EV

1. Touch a level you want to set.

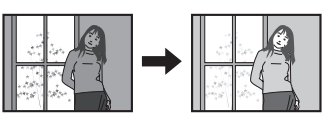
- To cancel exposure compensation, change the EV value to 0.0.

–2.0 ◄——► +2.0

Decreases the EV value. A lower EV value is best for dark-color subjects and for shooting outdoors on a clear day.



Increases the EV value. A higher EV value is best for light-colored subjects and backlit subjects.



2. Touch "OK".

This applies the exposure compensation value. The exposure compensation value you set remains in effect until you change it or turn off the camera (which causes it to revert to "0.0").

NOTE

- When shooting under very dark or very bright conditions, you may not be able to obtain satisfactory results even after performing exposure compensation.

Adjusting White Balance (White Balance)

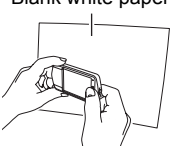
Procedure

Enter the "REC Mode" → MENU → White Balance

You can adjust white balance to match the source of light available where you are shooting and avoid the blue cast that results when shooting outdoors when it is cloudy, and the green cast that results when shooting under fluorescent lighting.

1. Touch the type of white balance you want to select.

You can see the affect of the white balance setting you select on the monitor screen.

Setting	Description
Auto WB	Configures the camera to adjust white balance automatically
Daylight	For shooting outdoors on a clear day
Overcast	For shooting outdoors on an overcast rainy day, in the shade, etc.
Shade	For shooting on a clear day in the shade of trees or buildings
Day White Fluor	For shooting under white or day white fluorescent lighting
Daylight Fluor	For shooting under daylight fluorescent lighting
Tungsten	For shooting under light bulb lighting
Manual WB	For configuring the camera manually to suit a particular light source. ①Touch "Manual WB". ②In the location where you plan to shoot, point the camera at a blank white piece of paper so it fills the entire monitor screen. ③Touch an area of the screen where no icon is located. The white balance setting is retained even if you turn off the camera. Blank white paper 

- When "Auto WB" is selected for the white balance setting, the camera automatically determines the white point of the subject. Certain subject colors and light source conditions can cause problems when the camera tries to determine the white point, which makes proper white balance adjustment impossible. If this happens, select the white balance setting that matches your shooting conditions (Daylight, Overcast, etc.).

2. Touch "OK".

Specifying ISO Sensitivity (ISO)

Procedure

Enter the "REC Mode" → MENU → ISO

ISO sensitivity is a measure of sensitivity to light.

Setting	Description		
AUTO	Adjusts sensitivity automatically according to conditions		
ISO 100	Lower sensitivity ↕ Higher sensitivity	Slow shutter speed ↕ Fast shutter speed (Set for shooting in dimly lit areas.)	Less noise ↕ Some coarseness (increased digital noise)
ISO 200			
ISO 400			
ISO 800			
ISO 1600			
ISO 3200			

- Since higher ISO sensitivity values tend to result in digital noise in images, the camera performs a noise filtering process. Because of this, it may take relatively longer for the camera to finish recording an image after it is shot. You will not be able to perform any operation while image recording is in progress.

Selecting a Focus Mode (Focus)

Procedure

Enter the "REC Mode" → MENU → Focus

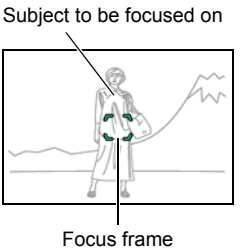
Changing to a different focus mode can help to achieve better focus.

Settings	REC Screen Icon Display	Type of Shot	Focus Mode		Approximate Focus Range*1	
			Snapshot	Movies	Snapshot	Movies
AF (Auto Focus)	None	General recording	Automatic	Fixed focal point	8 cm to ∞ (infinity) (3.1" to ∞)	46 cm to ∞ (infinity) (18.1" to ∞)
Macro		Close ups			8 cm to 50 cm (3.1" to 19.7")	17 cm to 27 cm (6.7" to 10.6")
PF (Pan Focus)		Shooting with a relatively wide focus range	Fixed focal point		Fixed focal point*2	46 cm to ∞ (infinity) (18.1" to ∞)
Infinity Focus		Scenery and other distant subjects	Fixed		Infinity (Wide Angle)	

*1 The focus range is the distance from the lens surface.
*2 The distance depends on shooting conditions.

Using Focus Lock

"Focus lock" is a technique you can use when you want to compose an image in which the subject you want to focus on is not within the focus frame in the center of the screen.



1. **Align the monitor screen's focus frame with the subject you want to focus on and then half-press the shutter button.**

2. **Keeping the shutter button half-pressed (which maintains the focus setting), move the camera to compose the image.**

3. **When you are ready to shoot the image, press the shutter button the rest of the way down.**

NOTE

- Focus lock also locks exposure (AE).
- The focus frame does not appear on the display when the Touch Shutter is enabled (On).

Turning on Image Review (Review)

Procedure

Enter the "REC Mode" → MENU → Review

While Review is turned on, the camera will display a image for about one second immediately after you press the shutter button to record it.

- Aperture, shutter speed, and ISO sensitivity values will be amber if Auto Exposure (AE) is incorrect.

Viewing Snapshots and Movies

Viewing Snapshots

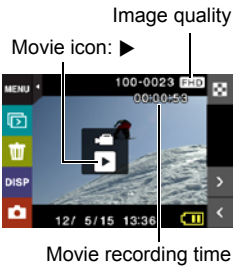
See page 32 for the procedure for viewing snapshots.

Viewing a Movie

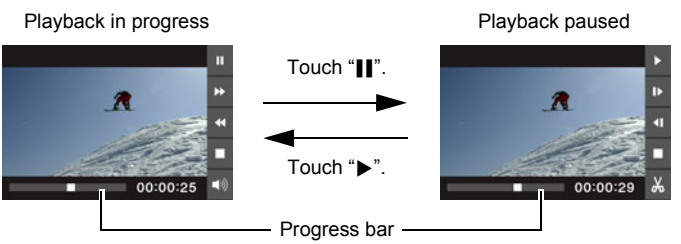
1. Touch "▶" (PLAY) to enter the PLAY mode.

2. Touch "<" or ">", or drag left or right across the screen image to scroll through the movies until the one you want is displayed.

- To scroll at high speed, touch and hold "<" or ">".



3. Touch "▶" (Movie) to start playback.



Movie Playback Controls

Pause/Play	Touch "❚❚" (pause) or "▶" (play).
Fast forward/ Fast reverse	During playback, touch "◀◀" (fast reverse) or "▶▶" (fast forward). • Each touch of either button increases the speed of the fast forward or fast reverse operation. • To return to normal playback speed, touch "▶".
Stop playback	During playback, touch "■".
Volume adjustment	During playback, touch "🔊" and then drag the volume bar to the desired level. • Volume can be adjusted only while movie playback is in progress.
1 frame forward/ back	While playback is paused, touch "❚▶" or "◀❚". • Touching and holding this icon advances frames continuously.
Information display on/off	Touch the screen.
Movie editing	Pause movie play at the location where you want to cut, and then touch "✂" (page 67).

• Playback may not be possible for movies not recorded with this camera.

Editing a Movie on the Camera (Movie Editing)

The Movie Editing feature lets you cut out a specific part of a movie.

1. Enter the PLAY mode and then start playback of the movie you want to edit.

2. When playback reaches the location where you want to cut, touch "❚❚" to pause.

3. Touch "✂".

4. Touch the option that specifies what you want to cut.

Previous Cut	Cuts everything from the beginning of the movie up to the current location.
Next Cut	Cuts everything from the current location to the end of the movie.

5. Touch "Cut".

The selected cut operation will take considerable time to complete. Don't try to perform any camera operation until the "Busy... Please wait..." message disappears from the monitor screen. Note that a cut operation can take a long time if the movie being edited is long.

IMPORTANT!

- When you edit a movie, only the result is saved. The original movie is not retained. An editing operation cannot be undone.

NOTE

- A movie that is shorter than five seconds cannot be edited.
- Editing of movies recorded with a different type of camera is not supported.
- You will not be able to edit a movie if the amount of remaining memory capacity is less than the size of the movie file you want to edit. If there is not enough memory available, delete files you no longer need to free up more.
- Splitting of a movie into two movies and splicing of two different movies into a single movie are not supported.

Viewing a Panorama Image

1. Touch "▶" (PLAY) to enter the PLAY mode.

2. Touch "<" or ">" or drag upwards or downwards to display the panorama image you want to view.

- To scroll at high speed, touch and hold "<" or ">".

3. Touch "▶" to play the panorama.

Panorama playback causes the image to scroll left, right, up, or down.

Playback Controls

Pause/Play	Touch "❚❚" (pause) or "▶" (play).
Stop playback	During playback, touch "■".
Scroll the panorama image	While playback is paused, drag the screen.
Information display on/off	Touch the screen.

NOTE

- The following functions cannot be performed on a panorama image.
  Movie Editing, Rotation

Playing a Slideshow on the Camera (Slideshow)

You can use the slideshow mode to automatically scroll through all of the images in camera memory.

1. In the PLAY mode, touch "⧉" for the playback mode.

This will start the slideshow.

- If "⧉" is not displayed on the screen, touch the tab to display it.

NOTE

- All operations are disabled while the slideshow is transitioning from one image to another.
- The time required for transition from one image to another may be longer in the case of an image that was not recorded with this camera.
- To return to normal (single image) display, touch the screen.

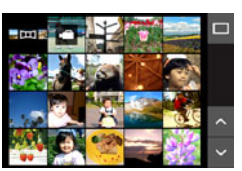
Viewing the Image Menu

The image menu shows multiple images on a single screen.

1. In the PLAY mode, touch "▦".

This displays the image menu.

- Touch "∧" or "∨" or drag upwards or downwards to scroll to the next page of images.
- To view the normal (single image) display mode, touch the image your want to view or touch "▭".
- In the case of a movie, the first image in the movie is displayed.
- A question mark (?) will be displayed for images that cannot be displayed for some reason.



Zooming an On-screen Image

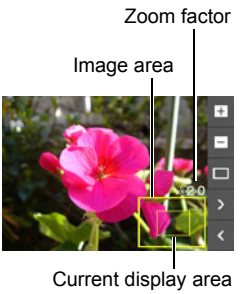
Snapshots can be zoomed on the monitor screen up to 8X.

- The actual available zoom factors depend on the size of the original image.

1. In the PLAY mode, touch "＜" or "＞" or drag left or right to display the image you want to view.

2. Spread your thumb and forefinger (page 17) on the displayed image to enlarge it.

- Dragging an enlarged screen image will change the part of the image that is displayed.
- Squeezing your thumb and forefinger (page 18) on the displayed image will reduce it in size.
  - When monitor screen contents are turned on, a graphic in the lower right corner of the screen shows what part of the zoomed image is currently displayed.
- Touching "＜" or "＞" while an enlarged image is displayed will scroll to the next sequential image while maintaining the current zoom factor.
- To return to normal (single image) display, touch "▭".



Viewing Snapshots and Movies on a TV Screen

Use a commercially available HDMI cable to connect the camera to the TV.

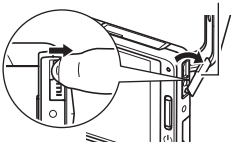
- Use a commercially available HDMI cable that is marked with the logo shown to the right.

HIGH DEFINITION MULTIMEDIA INTERFACE

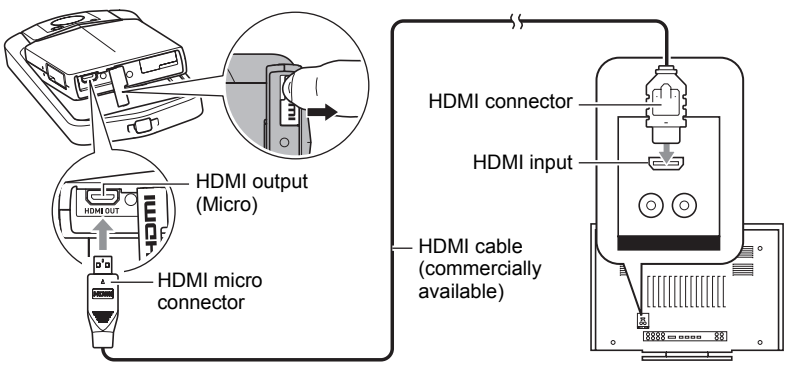
1. **Open the frame (page 14).**

2. **Hook your nail into the groove of the HDMI terminal cover and pull the cover in the direction indicated by the arrow to open it.**

HDMI terminal cover



3. **Turn off the camera and use a commercially available HDMI cable to connect the camera to a TV.**



- Make sure that the camera is turned off before plugging in or unplugging the cable. Check the user documentation that comes with the TV for information about requirements before plugging into or unplugging from the TV.

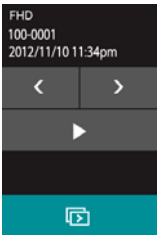
4. **Turn on the TV and select its video input mode.**

If the TV has more than one video input, select the one where the camera is connected.

5. Turn on the camera.

The camera monitor screen will shows a remote controller image. The TV screen will show a recorded image.

- The contents of the remote controller image will depend on the type of image that is displayed on the TV screen.



6. Touch the camera monitor screen to perform operations.

NOTE

- Use a HDMI cable with a plug that is compatible with the camera's HDMI micro connector on one end, and a plug that is compatible with your TV's HDMI connector on the other end.
- Proper image and/or audio output and other operations may not be possible with some devices.
- Connecting the camera to the HDMI connector of another device can damage both the camera and the other device. Never connect two HDMI output connectors to each other.
- When cables are connected to both the USB port and the HDMI output connector, the HDMI output connector connection is given priority.
- Disconnect the HDMI cable when you are not using HDMI output. The camera's monitor screen may not operate normally while the HDMI cable is connected.
- Audio is monaural.
- Audio is initially output by the camera at maximum volume. When you first start displaying images, set the TV volume control at a relatively low level and then adjust it as required.
- To select the digital signal format, see page 99.

Other Playback Functions (PLAY)

The following are menu operations you can use to configure various camera settings.

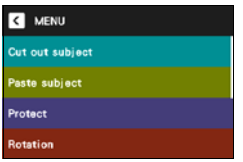
Using the PLAY Menu

■ Example Menu Screen Operation

1. In the PLAY mode, touch “MENU”.

This will display the menu screen.

- If “MENU” is not displayed on the screen, touch the tab to display it.
- Menu contents are different in the REC mode and PLAY mode.



2. Touch the item whose setting you want to change.

3. Configure the setting of the item in accordance with the screen contents.

- To cancel and exit the menu, touch “MENU” or press the shutter button.

■ Menu Operations in This Manual

Menu operations are represented in this manual as shown below. Touch the indicated icons and items, and perform operations as they are indicated, from left to right.

Procedure

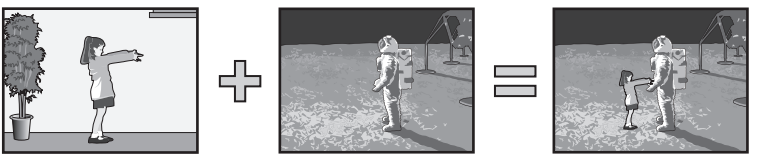
Enter the PLAY Mode → MENU → Protect

Extracting an Image from a Snapshot (Cut out subject)

Procedure

Enter the PLAY Mode → Display snapshot → MENU → Cut out subject

You can use the stylus that comes with the camera to draw an outline around a person or object and extract it from the snapshot. You can then insert the extracted subject into another snapshot.



Extracted Subject　Another Snapshot　Final Combined Image

1. Touch the drawing tool you want and then use the stylus to extract the subject.

Drawing Tool	Line Type	Description
	Thin	Draws a line for cutting out a subject.
	Thick	
	–	Erases a drawn line.

- Draw a boundary around the area of the image that you want to extract. The boundary line should be continuous, which means it starts and ends at the same point.

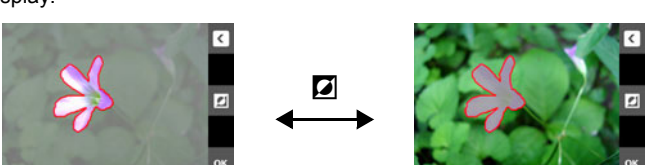
2. Touch "OK".

This will cause the background of the subject you outlined to become gray.

3. Touch "⧄" to select the area to be extracted and then touch "OK".

This will display the cut out subject.

- To scroll back one screen, touch the "◀" icon in the upper right corner of the display.



Extracted subject screen　Original image with subject extracted

4. After confirming that the part of the image to be extracted is the way you want, touch “OK”.
This saves the extracted image.

NOTE
- You cannot extract from an extracted subject. Attempting to do so will cause an error.

Inserting a Subject into another Snapshot (Paste subject)

Procedure

Enter the PLAY Mode → MENU → Paste subject

You can insert the camera’s built-in subject or subjects you create with “Cut out subject” (page 74) into snapshots.
- Only an image that satisfies the following conditions can be used as a background image.
  – It must be a snapshot recorded with this camera or a snapshot transferred to this camera’s memory using Photo Transport (page 82).
  – It must be an image with an aspect ratio of 4:3.

1. Touch “<” or “>” or drag left or right to scroll through images. Select image you want to use as the background and then touch “OK”.

2. Touch “<” or “>” or drag left or right to scroll though subjects. Select the subject you want to insert and then touch “OK”.

3. Touch “+” (zoom in) and “–” (zoom out) to adjust the size of the subject. You also can drag the subject around the screen to reposition it.

4. After the subject’s size and position are the way you want, touch “OK”.
This inserts the subject into the background image.

NOTE
- Performing a delete or format operation will not delete the built-in subjects.

Protecting a File Against Deletion (Protect)

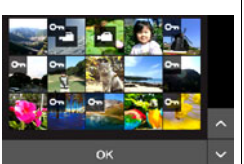
Procedure

Enter the PLAY Mode → MENU → Protect

You can protect images to prevent them from being deleted.

- A protected image will be indicated by "".

All Files On	Protects all files.
All Files Off	Unprotects all files.
Select	Protects and unprotects specific files. ①Touch "∧" or "∨" or drag upwards or downwards to display the image you want to protect. ②Touch an image to be protected, and "" will appears on the image. You can repeat steps ① and ② as many times as necessary to select multiple images. ③Touch "OK". To unprotect an image, touch it in step ② of the above procedure to remove "".



IMPORTANT!

- Note that even if a file is protected, it will be deleted if you perform the format operation (page 100).

Rotating an Image (Rotation)

Procedure

Enter the PLAY Mode → MENU → Rotation

1. **Touch "＜" or "＞" or drag upwards or downwards to display the image you want to rotate.**

2. **Touch "Rotate".**
This will rotate the image 90 degrees to the left.

3. **When the image is in the orientation you want, touch "＜".**

NOTE

- Rotation of a panorama image is not supported.
- Note that this procedure does not actually change the image data. It simply alters how the image is displayed on the camera's monitor screen.
- An image that has been protected or zoomed cannot be rotated.

Resizing a Snapshot (Resize)

Procedure

Enter the PLAY Mode → MENU → Resize

You can reduce the size of a snapshot and save the result as a separate snapshot. The original snapshot is also retained. You can select resize an image to one of three image sizes: 5M, 3M, VGA.

1. **Touch "＜" or "＞" or drag left or right to display the image you want to resize.**

2. **Touch a size.**
This resizes the image to the selected size and saves the result as a new photograph.

NOTE

- Resizing a 3:2 size snapshot will create an image with an aspect ratio of 4:3, with both sides cut off.
- The recording date of the resized version of the snapshot will be the same as the recording date of the original snapshot.

Cropping a Snapshot (Trimming)

Procedure

Enter the PLAY Mode → MENU → Trimming

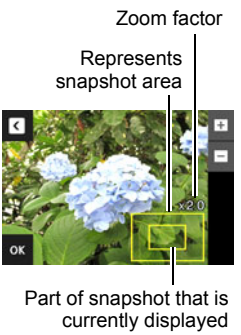
You can crop a snapshot to trim parts you do not need, and save the result in a separate file. The original snapshot is also retained.

1. **Touch "<" or ">" or drag left or right to display the image you want to crop.**

2. **Touch "OK".**

3. **Drag the image until the part you want to keep is displayed.**

- To enlarge the image, touch "+", or touch the screen with your thumb and forefinger and then spread them apart. To reduce the size of the image, touch "–", or touch the screen with your thumb and forefinger and then squeeze them together.



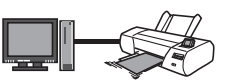
4. **Touch "OK".**

This will crop the image, leaving only the displayed part.

NOTE

- The image produced by cropping a 3:2 image will have an aspect ratio of 4:3.
- The recording date of the cropped image will be the same as the recording date of the original snapshot.

Printing

Professional Print Service
You can take a memory card that contains the images you want to print to a professional print service and have them printed.
Printing on a Home Printer
You can use a printer equipped with a memory card slot to print images directly from a memory card. For details, see the user documentation that comes with your printer.
Printing with a Computer
After transferring the images to your computer, use commercially available software to print. 

Printing with a Computer

There are a variety of different ways to print images stored on a computer. This section shows one standard printing example.

■ Printing on a Windows Computer

1. **Use the procedure under “Viewing and Storing Images on a Computer” (page 83) to store the image you want to print, and then display the image on your computer screen.**

2. **Windows XP users: Click “File” and then “Print”.**
Windows 7, Windows Vista users: Click “Print” and then “Print”.

3. **Configure the desired print settings and then print.**
Windows XP users: Follow the instructions on the print wizard that appears configure settings and then print.
Windows 7, Windows Vista users: Configure print settings and then click “Print”.

■ Printing on a Macintosh

1. **Use the procedure under “Connecting the Camera to Your Computer and Saving Files” (page 86) to store the image you want to print, and then display the image on your Macintosh screen.**

2. **Click “File” and then “Print”.**

3. **Configure print settings and then click “Print”.**
This will print the selected image.

Using the Camera with a Computer

Things you can do using a computer...

You can perform the operations described below while the camera is connected to a computer.

Save images to a computer and view them there		• Save images and view them manually (USB connection) (pages 83, 86). • Transfer images to a computer automatically over a wireless LAN for viewing (Eye-Fi) (page 89).
Play back and edit movies		• You can play back movies (pages 85, 88). • To edit movies, use commercially available software as required.
Transfer images stored on your computer to camera memory		In addition to images, you also can transfer screen shot images from your computer to the camera (Photo Transport*).

* Windows only

The procedures you need to perform when using the camera with your computer and when using the software are different for Windows and the Macintosh.

- Windows users should refer to “Using the Camera with a Windows Computer” on page 82.
- Macintosh users should refer to “Using the Camera with a Macintosh” on page 86.

Using the Camera with a Windows Computer

Install the required software in accordance with the version of Windows you are running and what you want to do.

When you want to do this:	Operating System Version	Install this software:	See page:
Save images to a computer and view them there manually	Windows 7, Windows Vista, Windows XP (SP3)	Installation not required.	83
Play movies	Windows 7, Windows Vista, Windows XP (SP3)	Movies can be played back using QuickTime 7. • You need to download QuickTime 7 on the Web if you want to use it.	85
Transfer images to the camera	Windows 7, Windows Vista, Windows XP (SP3)	**Photo Transport 1.0*** • Download this software from the website below. http://www.casio-intl.com/asia-mea/en/support/ • Download the user documentation for this software from the website below. http://www.exilim.com/manual/ • System Requirements Memory: At least 64MB Hard Disk Drive Space: At least 2MB	–

* “Photo Transport” will not run under 64-bit versions of Windows OS.

■ Precautions for Windows Users

- The software requires Administrator privileges to run.
- Operation on a self-made computer is not supported.
- Operation may not be possible under certain computer environments.

Viewing and Storing Images on a Computer

You can connect the camera to your computer in order to view and store images (snapshot and movie files).

Never use your computer to modify, delete, move, or rename any image files that are in the camera's built-in memory or on its memory card.
Doing so can cause problems with the camera's image management data, which will make it impossible to play back images on the camera and can drastically alter remaining memory capacity. Whenever you want to modify, delete, move, or rename an image, do so only on images that are stored on your computer.

IMPORTANT!

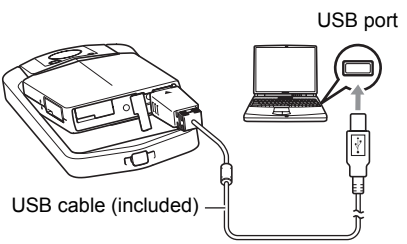
- Never unplug the USB cable, or operate the camera while viewing or storing images. Doing so can cause data to become corrupted.

NOTE

- You also can use your computer's card slot (if it has one) or a commercially available card reader to access image files directly from the camera's memory card. For details, see the user documentation that comes with your computer.

■ To connect the camera to your computer and save files

1. **Turn off the camera and then use the USB cable that comes with the camera to connect it to your computer.**
The camera will turn on automatically and battery charging will start (page 21).



- The camera may not turn on automatically in the case of certain computer models or connection conditions. If this happens, press [⏻] (Power) to turn on the camera.
- For details about connecting to the camera and precautions when connecting, see page 21.

2. **Windows 7, Windows Vista users: Click "Start" and then "Computer". Windows XP users: Click "Start" and then "My Computer".**

3. **Double-click "Removable Disk".**

- Your computer recognizes the memory card loaded in the camera (or built-in memory if there is no card) as a removable disk.

4. **Right-click the "DCIM" folder.**

5. On the shortcut menu that appears, click “Copy”.

6. Windows 7, Windows Vista users: Click “Start” and then “Documents”.
Windows XP users: Click “Start” and then “My Documents”.

- If you already have a “DCIM” folder in “Documents” (Windows 7, Windows Vista) or “My Documents” (Windows XP), the next step will overwrite it. If you want to keep the existing “DCIM” folder, you need to change its name or move it to a different location before performing the next step.

7. Windows 7 users: On the “Documents” “Organize” menu, select “Paste”.
Windows Vista users: On the “Documents” “Edit” menu, select “Paste”.
Windows XP users: On the “My Documents” “Edit” menu, select “Paste”.

This will paste the “DCIM” folder (and all the image files it contains) into your “Documents” (Windows 7, Windows Vista) or “My Documents” (Windows XP) folder. You now have a copy of the files that are in camera memory on your computer.

8. After you finish copying images, disconnect the camera from the computer.

On the camera, press [⏻] (Power) to turn off the camera. After checking to make sure that the back lamp is unlit or lit red, disconnect the USB cable.

■ To view images you copied to your computer

1. Double-click the copied “DCIM” folder to open it.

2. Double-click the folder that contains the images you want to view.

3. Double-click the image file you want to view.

- For information about file names, see “Memory Folder Structure” on page 93.

Playing Movies

To play back a movie, first copy it to your computer and then double-click the movie file. Some operating systems may not be able to play back movies. If this happens, you need to install separately available software.

- If you are unable to play back movies, go to the URL below to download QuickTime 7 and install it on your computer.
  http://www.apple.com/quicktime/

■ Minimum Computer System Requirements for Movie Playback

The minimum system requirements described below are necessary to play back movies recorded with this camera on a computer.

Operating System : Windows 7, Windows Vista, Windows XP (SP3)
CPU : Image Quality “Full HD”, “HD”:
Core 2 Duo 3.0GHz or higher
Image Quality “HS240”:
Pentium 4 2.0GHz or higher
Required Software : QuickTime 7

- The above are recommended system environments. Configuring one of these environments does not guarantee proper operation.
- Certain settings and other installed software may interfere with proper playback of movies.

■ Movie Playback Precautions

- Be sure to move the movie data to the hard disk of your computer before trying to play it. Proper movie playback may not be possible for data accessed over a network, from a memory card, etc.
- Proper movie playback may not be possible on some computers. If you experience problems, try the following.
  – Quit any other applications you have running, and stop resident applications.

Using the Camera with a Macintosh

Install the required software in accordance with what version of the Macintosh OS you are running and what you want to do.

When you want to do this:	Operating System Version	Install this software:	See page:
Save images to your Macintosh and view them there manually	OS X	Installation not required.	86
Save images to your Macintosh automatically/Manage images	OS X	Use iPhoto, which comes bundled with some Macintosh products.	–
Play movies	OS X	You can playback with QuickTime, which comes bundled with your operating system.	88

Connecting the Camera to Your Computer and Saving Files

Never use your computer to modify, delete, move, or rename any image files that are in the camera's built-in memory or on its memory card.
Doing so can cause problems with the camera's image management data, which will make it impossible to play back images on the camera and can drastically alter remaining memory capacity. Whenever you want to modify, delete, move, or rename an image, do so only on images that are stored on your computer.

IMPORTANT!

- Never unplug the USB cable, or operate the camera while viewing or storing images. Doing so can cause data to become corrupted.
- The camera does not support operation with Mac OS X 10.0. Operation is supported with Mac OS 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, and 10.7 (using the OS standard USB driver) only.

NOTE

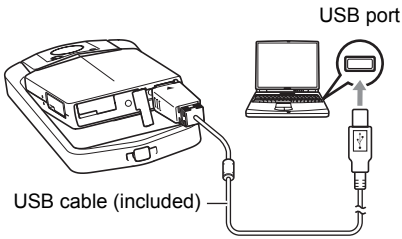
- You also can use your computer's card slot (if it has one) or a commercially available card reader to access image files directly from the camera's memory card. For details, see the user documentation that comes with your computer.

■ To connect the camera to your computer and save files

1. Turn off the camera and then use the USB cable that comes with the camera to connect it to your Macintosh.

The camera will turn on automatically and battery charging will start (page 21).

- The camera may not turn on automatically in the case of certain computer models or connection conditions. If this happens, press [⏻] (Power) to turn on the camera.
- For details about connecting to the camera and precautions when connecting, see page 21.



2. Double-click the camera's drive icon.

The camera's back lamp will light green at this time. In this mode, your Macintosh recognizes the memory card loaded in the camera (or the camera's built-in memory if it does not have a memory card loaded) as a drive. The appearance of the drive icon depends on the Mac OS version you are using.

3. Drag the "DCIM" folder to the folder to which you want to copy it.

4. After the copy operation is complete, drag the drive icon to Trash.

5. Disconnect the camera from the computer.

On the camera, press [⏻] (Power) to turn off the camera. After checking to make sure that the back lamp is unlit or lit red, disconnect the USB cable.

■ To view copied images

1. Double-click the camera's drive icon.

2. Double-click the "DCIM" folder to open it.

3. Double-click the folder that contains the images you want to view.

4. Double-click the image file you want to view.

- For information about file names, see "Memory Folder Structure" on page 93.
- An image that was rotated on the camera will be displayed on your Macintosh screen in its original (unrotated) orientation.

Playing a Movie

You can use QuickTime, which comes bundled with your operating system, to play back movies on a Macintosh. To play back a movie, first copy it to your Macintosh and then double-click the movie file.

■ Minimum Computer System Requirements for Movie Playback

The minimum system requirements described below are necessary to play back movies recorded with this camera on a computer.

Operating System : Image Quality “Full HD”: Mac OS X 10.4.11 or higher
Image Quality “HD”, “HS240”: Mac OS X 10.3.9 or higher

Required Software : QuickTime 7 or higher

- The above are recommended system environments. Configuring one of these environments does not guarantee proper operation.
- Certain settings and other installed software may interfere with proper playback of movies.

■ Movie Playback Precautions

Proper movie playback may not be possible on some Macintosh models. If you experience problems, try the following.

– Upgrade to the latest version of QuickTime.
– Shut down other applications that are running.

IMPORTANT!

- Be sure to move the movie data to the hard disk of your Macintosh before trying to play it. Proper movie playback may not be possible for data accessed over a network, from a memory card, etc.

Using an SD Memory Card with Built-in LAN

Transferring Images with an Eye-Fi Card (Eye-Fi)

Shooting with an Eye-Fi wireless SD memory card loaded in the camera makes it possible to transfer image data automatically to a computer via wireless LAN.

1. Configure LAN access point, transfer destination and other settings for the Eye-Fi card in accordance with the instructions that come with the Eye-Fi card.

2. After configuring settings, load the Eye-Fi card into the camera and record.

Images you record are sent by wireless LAN to your computer, etc.

- For full details, see the user documentation that comes with the Eye-Fi card.
- Before formatting a new Eye-Fi card to use it for the first time, copy the Eye-Fi Center install files to your computer. Do this before formatting the card.

IMPORTANT!

- Recorded images are transferred over wireless LAN. Do not use the Eye-Fi card or turn off Eye-Fi card communication (page 94) when on an aircraft or in any other location where use of wireless communication is limited or prohibited.
- Loading an Eye-Fi card will cause the Eye-Fi indicator Eye-Fi to appear on the monitor screen.

Eye-Fi	Communication enabled
Eye-Fi	Searching for access points

- A communication icon will appear on the monitor screen while image data transfer is in progress.
- The camera's Auto Power Off function is disabled while image data transfer is in progress.
- A confirmation message will appear on the monitor screen if you try to turn off the camera while image data transfer is in progress. Follow the instructions in the messages (page 122).
- Transfer of a large number of images can take some time to complete.
- Depending on the type of Eye-Fi card you are using and its settings, images on the Eye-Fi card may be deleted following image data transfer.
- When recording a movie to an Eye-Fi card, it can take too much time to record data, which can result in breaks in the image and/or audio.
- Proper Eye-Fi card data communication may not be possible due to camera settings, battery level, or operating conditions.

Using a Smartphone to Play Back Images Stored on a FlashAir Card (FlashAir)

Loading a commercially available FlashAir card in the camera makes it possible to view images on and copy them to a smartphone or computer over a wireless LAN connection.

- For more information, see the instructions that come with the card.

1. Use a computer or other device to configure the settings of the FlashAir card.

- To protect your personal information, it is recommended that you change the password of a FlashAir card after you purchase it. For more information, see the instructions that come with the card.
- If the FlashAir card's "Start automatically at boot" setting is selected, a wireless LAN connection will be established automatically whenever the camera is turned on.
- If you want to turn "FlashAir" (page 94) on and off manually on the camera, change the FlashAir card's setting to "Start with the control image".

2. Load the configured FlashAir card into the camera and shoot the images you want.

- Formatting a FlashAir card with the camera will delete files on the card that are required for communication. For details about formatting, see the instructions that come with the card.

3. Access the FlashAir card from a smartphone or other device.

IMPORTANT!

- When on an aircraft or in any other location where use of wireless communication is limited or prohibited, do not use a FlashAir card, or change the camera's "FlashAir" setting (page 94) and the FlashAir card's setting to those shown below.
  FlashAir: Off
  Memory Card: Start with the control image
- Loading a FlashAir card into the camera will cause the FlashAir icon to appear on the monitor screen.

	Communication enabled
	Running (Communication disabled)

- The following applies to camera operations while image data on a FlashAir card is being manipulated from a smartphone or other device.
  – icon displayed on the monitor screen.
  – The Auto Power Off function is disabled.
  – A confirmation message appears on the monitor screen if you try to turn it off. If this happens, follow the instructions in the message (page 122).
- The FlashAir wireless LAN connection is automatically terminated if no operation is performed for a certain amount of time.
- Recording or playing back a movie to a FlashAir card can result in breaks in the image and/or audio.
- Proper FlashAir card communication may not be possible due to camera settings, battery level, or operating conditions.
- Changing the configuration of camera settings and performing other operations may take longer than normal when a FlashAir card is running.

Files and Folders

The camera creates a file each time you shoot a snapshot, record a movie, or perform any other operation that stores data. Files are grouped by storing them in folders. Each file and folder has its own unique name.

- For details about how folders are organized in memory, see “Memory Folder Structure” (page 93).

	Name and Maximum Number Allowed	Example
File		
	Each folder can contain up to 9999 files named CIMG0001 through CIMG9999. The extension on the file name depends on the file type.	26th file name: CIMG0026.JPG Extension Serial number (4 digits)
Folders		
	Folders are named from 100CASIO to 999CASIO. There can be up to 900 folders in memory.	100th folder name: 100CASIO Serial number (3 digits)

- You can view folder and file names on your computer. For details about how file names are displayed on the camera’s monitor screen, see page 10.
- The total number of folders and files allowed depends on the image size and quality, and capacity of the memory card being used for storage.

Memory Card Data

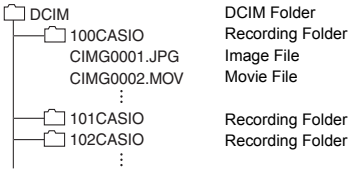
The camera stores images you shoot in accordance with the Design Rule for Camera File System (DCF).

■ About DCF

The following operations are supported for DCF-compliant images. Note, however, that CASIO makes no performance guarantees concerning these operations.

- Transferring this camera’s DCF-compliant images to another manufacturer’s camera and view them.
- Printing this camera’s DCF-compliant images on another manufacturer’s printer.
- Transferring another camera’s DCF-compliant images to this camera and view them.

■ Memory Folder Structure



■ Supported Image Files

- Image files shot with this camera
- DCF-compliant image files

This camera may not be able to display an image, even if it is DCF-compliant. When displaying an image recorded on another camera, it may take a long time for the image to appear on this camera's monitor screen.

■ Built-in Memory and Memory Card Data Handling Precautions

- Whenever copying memory contents to your computer, you should copy the DCIM folder and all of its contents. A good way to keep track of multiple DCIM folders it to change their names to dates or something similar after you copy them to your computer. If you later decided to return a DCIM folder to the camera, however, be sure to change its name back to DCIM. The camera is designed to recognize only a root file with the name DCIM. Note the camera also will not be able to recognize the folders inside the DCIM folder unless they have the names they originally had when you copied them from the camera to your computer.
- Folders and files must be stored in accordance with the "Memory Folder Structure" shown on page 93 in order for the camera to be able to recognize them correctly.

Other Settings (Set Up)

This section explains menu items that you can use to configure settings and perform other operations in both the REC mode and PLAY mode.

For information about menu operations, see page 55.

Adjusting Monitor Screen Brightness (Screen)

Procedure

MENU → Setup → Screen

You can use the following procedure to change the brightness of the monitor screen.

Auto	With this setting, the camera detects available light levels and automatically adjusts the brightness of the monitor screen accordingly.
+2	Brightness that is greater than +1, which makes the screen easier to view. This setting consumes more power.
+1	Bright setting for outdoor use, etc. Brightness that is greater than 0.
0	Normal monitor screen brightness for indoor use, etc.
–1	Screen brightness for viewing in a dark environment without disturbing others around you.

Turning off Eye-Fi Card Communication (Eye-Fi)

Procedure

MENU → Setup → Eye-Fi

Select “Off” to disable Eye-Fi card communication (page 89).

Configuring FlashAir Card Communication Settings (FlashAir)

Procedure

MENU → Setup → FlashAir

Selecting “Start with the control image” for the FlashAir card setting and selecting “On” for the camera’s “FlashAir” setting will establish a FlashAir wireless LAN connection (page 90).

- If the FlashAir card’s “Start automatically at boot” setting is selected, a wireless LAN connection will be established automatically whenever the camera is turned on.

Configuring Camera Sound Settings (Sounds)

Procedure

MENU → Setup → Sounds

Startup		Toggles the operation tone between on and off.
Half Shutter		
Shutter		
Operation		
Volume	**Operation Vol**	Specifies the sound volume. This volume setting is also used during video output (from the HDMI port) (page 71).
	Playback Vol	Specifies the volume of movie audio output. This volume setting is also used during video output (from the HDMI port) (page 71).

- Setting a volume level of 0 mutes output.

Time Stamping Snapshots (Timestamp)

Procedure

MENU → Setup → Timestamp

You can configure the camera to stamp the recording date only, or date and time in the lower right corner of each snapshot.

- Once date and time information is stamped into a snapshot, it cannot be edited or deleted.

Example: July 10, 2015, 1:25 p.m.

Date	2015/7/10
Date&Time	2015/7/10 1:25pm
Off	No stamping of date and/or time

- Even if you do not stamp the date and/or time with Timestamp, you can do so later using some printing application.
- Stamping is performed in accordance with the date and time settings (page 97) and the display style settings (page 98).

Configuring World Time Settings (World Time)

Procedure

MENU → Setup → World Time

Setting a Travel Destination

You can use the World Time screen to view the current time in a zone that is different from your Home City when you go on a trip, etc. World Time displays the current time in 162 cities in 32 time zones around the globe.

1. **Touch “Destination”.**

- To change the geographic area and city for the time where you normally use the camera, select “Home”.

2. **Touch “City”.**

To specify summer time for the destination city, select “DST” and then select the “On” setting (Summer time is used in some geographical areas to advance the current time setting by one hour during the summer months).

3. **Drag upwards and downwards to display the area of the destination city and then touch “OK”.**

4. **Drag upwards and downwards until you find the city you want, and then touch to select it.**

IMPORTANT!

- Before configuring World Time settings, make sure that the Home City setting is the place where you live or normally use the camera. If it isn’t, select “Home” on the screen in step 1 and configure the Home City, date, and time settings as required (page 97).

Selecting the Time Display

Use this procedure to specify the time displayed by the camera for your home city and destination.

1. Touch “Time”.

2. Touch “Home” or “Destination”.

This will configure the time setting of the location you touched in the previous step.

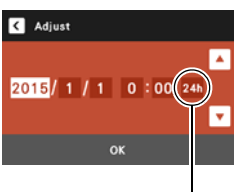
Setting the Camera’s Clock (Adjust)

Procedure

MENU → Setup → Adjust

1. Touch the value you want to change (year, month, day, hour, minute).

2. Touch “▲” or “▼” to change the currently selected value.



12/24 hour switch icon

- You can specify a date from 2001 to 2049.
- Be sure to select your Home City (page 96) before setting the time and date. If you set the time and date while the wrong city is selected for your Home City, the times and dates of all of the World Time cities (page 96) will be wrong.
- To switch between 12-hour and 24-hour format, touch the 12/24 hour switch icon.
- Touching and holding “▲” or “▼” scrolls at high speed.

3. Touch “OK”.

Specifying the Date Style (Date Style)

Procedure

MENU ⟶ Setup ⟶ Date Style

You can select from among three different styles for the date.

Example: July 10, 2015

YY/MM/DD	15/7/10
DD/MM/YY	10/7/15
MM/DD/YY	7/10/15

Specifying the Display Language (Language)

Procedure

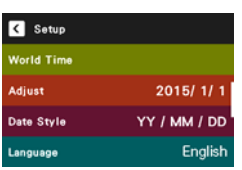
MENU ⟶ Setup ⟶ Language

■ Specify the display language you want.

1. **On the menu screen, touch “Setup”.**

2. **Touch “Language”.**

3. **Drag upwards and downwards until you find the language you want, and then touch to select it.**



- Camera models sold in certain geographic areas may not support display language selection.

Calibrating the Touch Panel (Calibrate TP)

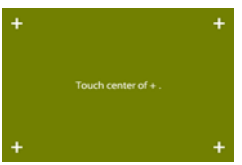
Procedure

MENU ⟶ Setup ⟶ Calibrate TP

Calibrate the touch panel whenever a touch operation does not produce the desired results or if touch panel response is poor.

1. **Touch “Start”.**

2. **Use the stylus to touch the centers of each of the four cross marks (+) as they appear on the screen. Take your time when performing this operation and wait until the next cross appears.**



The message “Complete” indicates that touch panel calibration is complete.

- Carefully touch the center of each cross mark (+).
- When calibrating the touch panel, position and hold the camera as you do during normal shooting (page 16).

Selecting the HDMI Terminal Output Method (HDMI)

Procedure

MENU ⟶ Setup ⟶ HDMI

Use this setting to select the digital signal format when connecting to a TV with an HDMI cable.

Auto	This setting will cause the format to change automatically in accordance with the connected TV. Normally, you should use this mode.
1080i	1080i format output*
480p	480p format output
576p	576p format output

* 1080i corresponds to 1080 60i, but not 1080 50i. Because of this, the required output method may be 576p when outputting to a digital TV in a PAL reception area that does not support 1080i 60i. If you are in a PAL reception area and nothing is displayed automatically, change the setting to 576p.

- If an image does not appear when “Auto” is selected as the output method, try changing this setting to something else.

Formatting Built-in Memory or a Memory Card (Format)

Procedure

MENU → Setup → Format

If a memory card is loaded in the camera, this operation will format the memory card. It will format built-in memory if no memory card is loaded.

- The format operation will delete all contents on the memory card or in built-in memory. It cannot be undone. Make sure you do not need any data currently on the card or in built-in memory before you format it.
- Formatting built-in memory or a memory card will delete all protected images stored there.
- Check the battery level before starting a format operation and make sure it is not too low. Formatting may not be performed correctly and the camera may stop operating normally if the camera powers down while formatting is in progress.

Resetting the Camera to Factory Defaults (Reset)

Procedure

MENU → Setup → Reset

See page 116 for details about the camera's factory default settings.
The settings below are not reset.
World Time settings, clock settings, date style, screen language, video output

Appendix

Safety Precautions

⚠ DANGER

This symbol indicates information that, if ignored or applied incorrectly, creates the danger of death or serious personal injury.

⚠ WARNING

This indication stipulates matters that have the risk of causing death or serious injury if the product is operated incorrectly while ignoring this indication.

⚠ CAUTION

This indication stipulates matters that have the risk of causing injury as well as matters for which there is the likelihood of occurrence of physical damage only if the product is operated incorrectly while ignoring this indication.

Symbol Examples

This circle with a line through it (⃠) means that the indicated action must not be performed. Indications within or nearby this symbol are specifically prohibited. (The example at left indicates that disassembly is prohibited.)

The black dot (●) means that the indicated action must be performed. Indications within this symbol are actions that are specifically instructed to be performed. (The example at left indicates that the power plug must be unplugged from the electrical socket.)

⚠ DANGER

■ Built-in Rechargeable Battery

- To charge the battery, use only the method specifically described in this manual. Attempting to charge the battery by an unauthorized means creates the risk of battery overheating, fire, and explosion.
- Do not expose or immerse the battery in fresh water or salt water. Doing so can damage the battery, and cause deterioration of its performance and loss of service life.
- The battery is intended for use with a CASIO Digital Camera only. Use with any other device creates the risk of the battery damage, or deterioration of battery performance and service life.

⚠ DANGER

- Failure to observe any of the following precautions creates the risk of battery overheating, fire, and explosion.
  - Never use or leave the battery near open flame.
  - Do not expose the battery to heat or fire.
  - Make sure the battery is oriented correctly when charging it.
  - Never carry or store the battery together with items that can conduct electricity (necklaces, pencil lead, etc.).
  - Never disassemble the battery, pierce it with a needle, or expose it to strong impact (hit it with a hammer, step on it, etc.), and never apply solder to it. Never place the battery into a microwave oven, dehumidifier, high-pressure generating device, etc.
  - Never remove the outer sticker from the battery.

- Do not use or leave the battery under direct sunlight, in an automobile parked in the sun, or in any other area subject to high temperatures. Doing so can damage the battery, and cause deterioration of its performance and loss of service life. Also, these conditions can cause the battery to swell to the point that you may not be able to remove it.

- Battery fluid can damage your eyes. Should battery fluid get into your eyes accidentally, immediately rinse them with clean tap water and then consult a physician.

⚠ WARNING

■ Smoke, abnormal odor, overheating, and other abnormalities

- Continued use of the camera while it is emitting smoke or strange odor, or while it is overheating creates the risk of fire and electric shock. Immediately perform the following steps whenever any of the above symptoms are present.
  1. Turn off the camera. If the camera will not turn off, press the reset button.
  2. If you are using the USB-AC adapter to power the camera, unplug the power plug from the wall outlet.
  3. Contact your retailer or nearest CASIO authorized service center.

■ Keep Away From Fire

- Never expose the camera to fire, which can cause it to explode and creates the risk of fire and personal injury.

■ Avoid Use While In Motion

- Never use the camera to record or play back images while operating an automobile or other vehicle, or while walking. Looking at the monitor while in motion creates the risk of serious accident.

■ LED Light

- Never use the LED light while it is pointed in the direction of a person operating a motor vehicle. Doing so can interfere with the driver's vision and create the risk of accident.

■ USB-AC Adapter

- The power cord that comes with the camera is designed for use in the country where the camera was purchased. If you use the camera in another country, be sure to use a power cord that conforms to that country's ratings and power supply voltage. Use of an improper power cord creates the risk of fire and electric shock.
- Misuse of USB-AC adapter creates the risk of fire and electric shock. Be sure to observe the following precautions.
  - Use only the specified USB-AC adapter.
  - Never use the USB-AC adapter with another device.
  - Use a power outlet that matches the power supply specified for the USB-AC adapter.
  - Never plug the power cord into a wall outlet that is shared by other devices, or into a shared extension cord.
  - Never locate the USB-AC adapter near a stove or other heating device.
- Misuse of the USB-AC adapter can cause them to become damaged, creating the risk of fire and electric shock. Be sure to observe the following precautions.
  - Never place heavy objects on the USB-AC adapter or subject it to direct heat.
  - Do not modify the USB-AC adapter, allow it to become damaged, or forcibly bend it.
  - Do not twist or pull on the USB-AC adapter cord.
  - When in use, locate the cord where it will not be tripped over.

⚠ WARNING

- Never touch the power plug while your hands are wet. Doing so creates the risk of electric shock.

- Should the power cord or power plug become damage, contact your retailer or nearest CASIO authorized service center.

- Do not use the USB-AC adapter in areas where liquids* might spill on them. Liquids create the risk of fire and electric shock.
  * Liquids: Water, sports drinks, seawater, animal or pet urine, etc.

- Do not place a flower vase or any other liquid container on top of the USB-AC adapter. Water creates the risk of fire and electric shock.

- Do not touch the camera or USB-AC adapter during lightning storms.

- Before going out, be sure to unplug the USB-AC adapter from the power outlet and put in a place away from objects used by animals and pets. An animal or pet chewing on the power cord can cause it short, leading to the risk of fire.

■ Water and Foreign Matter

- Water, other liquids, or foreign matter (especially metal) getting inside the camera creates the risk of fire and electric shock. Immediately perform the following steps whenever any of the above symptoms are present. Particular care is required when using the camera where it is raining or snowing, near the ocean or other body of water, or in a bathroom.
  1. Turn off the camera. If the camera will not turn off, press the reset button.
  2. If you are using the USB-AC adapter to power the camera, unplug the power plug from the wall outlet.
  3. Contact your retailer or nearest CASIO authorized service center.

■ Disassembly and Modification

- Except when disposing of the camera, never try to take it apart or modify it in any way. Doing so creates the risk of electric shock, burn injury, and other personal injury. Be sure to leave all internal inspection, maintenance, and repair up to your retailer or nearest CASIO authorized service center.

■ Dropping and Rough Treatment

- Continued use of the camera after it is damaged by dropping or other rough treatment creates the risk of fire and electric shock. Immediately perform the following steps whenever any of the above symptoms are present.
  1. Turn off the camera. If the camera will not turn off, press the reset button.
  2. If you are using the USB-AC adapter to power the camera, unplug the power plug from the wall outlet.
  3. Contact your retailer or nearest CASIO authorized service center.

⚠ WARNING

■ Memory Cards

- Memory cards are small and present a risk of accidentally being swallowed by infants and young children. Keep memory cards out of the reach of infants and young children. If a memory card is ever swallowed accidentally, contact a physician immediately.

■ Precaution when Camera is On

- Do not touch the camera for long periods while it is on. The camera becomes warm when on, and long term contact creates the risk of low-temperature burns.

⚠ CAUTION

■ USB-AC Adapter

- Misuse of the USB-AC adapter creates the risk of fire and electric shock. Make sure you observe the following precautions.
  - Never cover the USB-AC adapter or power cord with a quilt, blanket, or other cover while it is in use, and do not use it near a heater. Doing so can interfere with heat radiation and cause the area around them to become hot.
  - When unplugging from the wall outlet, never pull on the power cord. Grasp the power plug and pull.
  - Do not use detergent when cleaning the power cord (especially the plug), the USB-AC adapter (especially the jack), or the USB cable (especially the plug).
  - Insert the power plug into the wall outlet as far as it will go.
  - Unplug the power plug from the wall outlet before leaving the camera unattended for long periods, such as when leaving on a trip, etc.
  - At least once a year, use a cloth or vacuum cleaner to clean any dust build up on the prongs of the power plug and in the area around them.

⚠ CAUTION

■ Built-in Rechargeable Battery

- If battery charging does not end normally within the specified charging time, stop charging anyway and contact your local CASIO authorized service center. Continued charging creates the risk of battery overheating, fire, and explosion.
- Be sure to read the user documentation that comes with the camera before using or charging the battery.
- Store batteries in a location that cannot be reached by infants and young children. When using a battery where infants and young children are present, be on guard to ensure that they do not have the chance to remove the battery from the camera.
- Do not leave batteries near areas used by pets. A pet chewing on a battery can lead to accidents caused by the battery leaking, overheating, or exploding.
- Should fluid from a battery accidentally get onto clothing or your skin, immediately rinse it off with clean tap water. Prolonged contact with battery fluid can cause skin irritation.

■ Connections

- Never plug any devices that are not specified for use with this camera into connectors. Connecting a non-specified device creates the risk of fire and electric shock.

■ Unstable Locations

- Never place the camera on an unstable surface, on a high shelf, etc. Doing so can cause the camera to fall, creating the risk of personal injury.

■ Locations To Be Avoided

- Never leave the camera in any of the following types of locations. Doing so creates the risk of fire and electric shock.
  - Areas subject to large amounts of humidity or dust
  - Food preparation areas or other locations where oil smoke is present
  - Near heaters, on a heated carpet, in areas exposed to direct sunlight, in a closed vehicle parked in the sun, or other areas subject to very high temperatures

⚠ CAUTION

■ Monitor Screen

- Do not apply strong pressure to the LCD panel surface or subject it to strong impact. Doing so can cause the display panel glass to crack and lead to personal injury.
- Should the monitor screen ever become cracked, never touch any of the liquid inside the monitor screen. Doing so creates the risk of skin inflammation.
- Should monitor screen liquid ever get into your mouth, immediately rinse your mouth out and contact your physician.
- Should monitor screen liquid ever get into your eyes or onto your skin, immediately rinse with clean water for at least 15 minutes and contact your physician.

■ Backing Up Important Data

- Always keep backup copies of important data in camera memory by transferring it to a computer or other storage device. Note that data can be deleted in the case of camera malfunction, repair, etc.

■ LED Light

- Never use the LED light while it is pointed in the direction of and too close to a person's face. Doing so creates the risk of loss of eyesight. In the case of infants and young children in particular, keep the light source at least one meter away the eyes.

■ Transport

- When in an aircraft or medical facility, comply with instructions of personnel in charge. Electromagnetic waves and other signals emitted by the camera can adversely affect other equipment.

Precautions During Use

■ Data Error Precautions

Your digital camera is manufactured using precision digital components. Any of the following creates the risk of corruption of data in camera memory.

– Removing the memory card while the camera is performing some operation
– Removing the memory card while the back lamp is flashing green after turning off the camera
– Disconnecting the USB cable while communication is in progress
– Shooting with a battery that quickly goes low right after it is charged
  • Shooting with a battery that quickly goes low right after it is charged can also cause camera malfunction. Replace the battery with a new one immediately.
– Other abnormal operations

Any of the above conditions can cause an error message to appear on the monitor screen (page 122). Perform the action indicated by the message that appears.

■ Operating Environment

- Operating Temperature Requirements: 0 to 40°C (32 to 104°F)
- Operating Humidity: 10 to 85% (non condensation)
- Do not place the camera in any of the following locations.
  – In an area exposed to direct sunlight, or large amounts of moisture, dust, or sand
  – Near heating or cooling devices, or in other areas subjected to extreme changes in temperature or humidity
  – Inside of a motor vehicle on a hot day, or in an area subjected to strong vibration

■ Condensation

Sudden and extreme temperature changes, such as when the camera is moved from the outdoors on a cold winter day into a warm room, can cause water droplets called “condensation” to form on the interior and the exterior of the camera, which creates the risk of malfunction. To prevent condensation from forming seal the camera in a plastic bag before changing locations. Then leave the bag sealed to allow the air inside to naturally change to the same temperature as the air in the new location. After that, remove the camera from the bag for a few hours.

■ Lens

- Never apply too much force when cleaning the surface of the lens. Doing so can scratch the lens surface and cause malfunction.
- You may sometimes notice some distortion in certain types of images, such as a slight bend in lines that should be straight. This is due to the characteristics of lenses, and does not indicate malfunction of the camera.

■ Caring for your camera

- Never touch the lens with your fingers. Finger smudges, dirt, and other foreign matter on the lens can interfere with proper operation of the camera. Use a blower or other means to keep the lens and flash window free of dirt and dust, and wipe gently with a soft, dry cloth.
- To clean the camera, wipe it with a soft, dry cloth.

■ Discarding or Transferring Ownership of a Memory Card or the Camera

The format and delete functions of the camera do not actually delete files from the memory card. The original data remains on the card. Note that responsibility for the data on a memory card lies with you. The following procedures are recommended whenever you discard a memory card or the camera, or if you transfer ownership to another party.

- When discarding a memory card, either physically destroy the memory card or use commercially available data delete software to completely delete the data on the memory card.
- When transferring ownership of a memory card to another party, use commercially available data deletion software to completely delete the data on it.
- Use the format function (page 100) to completely delete the data in built-in memory before discarding or transferring ownership of the camera.

■ Other Precautions

The camera becomes slightly warm during use. This is normal and does not indicate malfunction.

■ Copyrights

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Power Supply

Charging

■ If the camera's back lamp starts flashing red...

If the back lamp starts flashing red during charging, it means that further charging is not possible for one of the reasons below. Perform the actions described below to correct the problem and then try charging again.

Ambient temperature or the temperature of the battery is abnormally high or low

Unplug the USB cable from the camera and wait for a while until the camera is within the temperature range of 10°C to 35°C (50°F to 95°F), and then try charging again.

Safety timer activated

A battery that has not been used for a long time, certain types of computers, and connection conditions can cause charging to take longer than normal. If charging takes longer than about six hours, a safety timer will terminate it automatically, even if the battery is not fully charged. If the battery has not been used for a very long time, charging may terminate automatically after only about 45 minutes.

1) Using a battery that has not been used for a long time.
   Disconnect and then reconnect the USB cable to resume charging.
2) Insufficient power supply when connected to computer
   Connect directly to a USB port what supplies a current of 500mA.

For details about the power supply capacity of a computer's USB port, contact the manufacturer of the computer. Though disconnecting and then reconnecting the USB cable will resume charging, you may need to do so repeatedly if the power supply capacity of the computer is low.

If problems continue to occur after you perform the above steps, it could mean that the battery is faulty. Contact your nearest CASIO authorized service center.

Battery Precautions

■ Precautions during Use

- Operation provided by a battery under cold conditions is always less than operation under normal temperatures. This is due to the characteristics of the battery, not the camera.
- Charge the battery in an area where the temperature is within the range of 10°C to 35°C (50°F to 95°F). Outside this temperature range charging can take longer than normal or even fail.

■ Storage Precautions

- Storing the camera for a long time while it is charged can cause deterioration of battery characteristics. If you do not plan to use a camera for some time, fully use up its charge before storing it.
- To prevent over discharging of an unused battery, fully charge it about once every six months.

Battery Replacement

- If the battery provides only very limited operation following a full charge, it probably means it has reached the end of its service life. Have the battery replaced with a new one. Contact your retailer or a CASIO authorized service center to have the battery replaced. Do not try to replace the battery yourself.

Using the Camera in another Country

■ Precautions during Use

- The bundled USB-AC adaptor is designed for operation with any power supply in the range of 100V to 240V AC, 50/60Hz. Note, however, that the shape of the power cord plug depends on each country or geographic area. Before taking the camera and USB-AC adaptor along on a trip, check with travel agent about the power supply requirements in your destination(s).
- Do not connect the USB-AC adaptor to a power supply through a voltage converter or similar device. Doing so can lead to malfunction.

Disposing of the Camera

When disposing of the camera, be sure to first remove its built-in lithium ion battery and send it in for recycling.

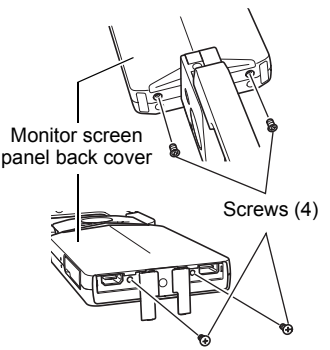
IMPORTANT!

- The battery of this camera is built-in and cannot be replaced by you. Contact your retailer or a CASIO authorized service center to have the battery replaced.
- Make sure that the camera is turned off before removing the battery.
- The edges of the back cover are sharp. Take care not to cut your fingers when removing it.

1. **Turn off the camera.**

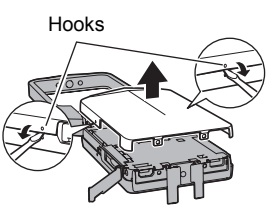
2. **Open the camera's frame until it and the monitor screen panel form a 90 degree angle.**

3. **Use a precision Phillips tip screwdriver to remove the four screws that secure the monitor screen panel back cover in place.**

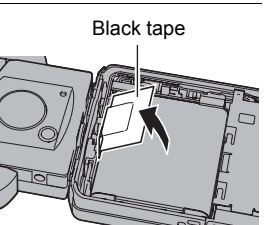


4. **Open the memory card slot cover.**

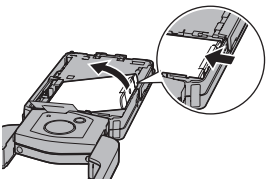
5. **Use a flat-blade precision screwdriver to release the hooks and then lift the monitor screen panel back cover in the direction indicated by the arrow.**



6. **Peel the black tape from the battery.**



7. Pressing the edge of the battery in the direction indicated by the arrow, lift the battery to remove it.



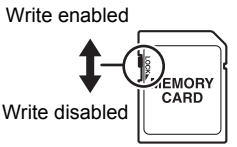
■ Old Rechargeable Battery Handling Precautions

- Insulate the positive and negative terminals with tape, etc.
- Do not peel the covering off of the battery.
- Do not try to take the battery apart.

Using a Memory Card

See page 25 for information about supported memory cards and how to load a memory card.

■ Using a Memory Card



- SD memory cards, SDHC memory cards, and SDXC memory cards have a write protect switch. Use the switch when you need to guard against accidentally deleting data. Note, however, if you write protect an SD memory card you must then turn write protection off whenever you want to record to it, format it, or delete any of its images.
- If a memory card starts to behave abnormally during image playback, you can restore normal operation by reformatting it (page 100). However, it is recommended that you always take along multiple memory cards whenever using the camera far away from the home or office.
- As you record data to and delete data from a memory card a number of times, it loses its ability to retain data. Because of this, periodic re-formatting of a memory card is recommended.
- Electrostatic charge, electrical noise, and other phenomena can cause data to become corrupted or even lost. Make sure that you always back up important data on other media (CD-R, CD-RW, hard disk, etc.).

■ Memory Card Handling Precautions

- Certain types of memory cards can slow down processing speed. Whenever possible use an Ultra High-Speed Type memory card. Note, however, that not all operations can be guaranteed even if an Ultra High-Speed Type memory card is used. Certain movie quality settings can result in too much time being required to record data, which can result in breaks in the image and/or audio during playback. If this happens, the movie icon will turn yellow on the monitor screen.

Reset Initial Default Settings

The tables in this section show the initial default settings on menus that appear in the REC mode and PLAY mode when you reset the camera (page 100).

- A dash (–) indicates an item whose setting is not reset or an item for which there is no reset setting.

IMPORTANT!

- Some menu items may not be available, depending on the recording mode being use.

■ REC Menu

Touch Shutter	Off
Self-timer	Off
LED	Off
Image Size	12M
Movie Quality	Full HD
EV Shift	0.0

White Balance	Auto
ISO	Auto
Focus	AF
Review	Off*
Setup	→ See below.

* Default setting depends on country or geographic region.

■ PLAY Menu

Cut out subject	–
Paste subject	–
Protect	–
Rotation	–

Resize	–
Trimming	–
Setup	→ See below.

■ Setup Menu

Screen	Auto
Eye-Fi	On
FlashAir	On
Sounds	Startup: On / Half Shutter: On / Shutter: On / Operation: On / Operation Vol: 3 / Playback Vol: 7
Timestamp	Off
World Time	–

Adjust	–
Date Style	–
Language	–
Calibrate TP	–
HDMI	Auto
Format	–
Reset	–
Version	–

Troubleshooting

Problem	Possible Cause and Recommended Action
Power Supply	
Power does not turn on.	1) The battery of new camera is not charged. Charge the battery before using the camera. 2) The camera battery may be dead. Charge the battery (page 19). If this does not resolve the problem, contact your retailer or a CASIO authorized service center.
The camera suddenly powers down.	1) The camera is designed to turn off automatically after no operation is performed for about five minutes. Turn power back on. 2) The battery may be dead. Charge the battery (page 19). 3) The camera's protection function may have activated because camera temperature is too high. Turn off the camera and wait until it cools down before trying to use it again.
Power will not turn off. Nothing happens when a button is pressed.	Use a thin object to press the reset button (page 8) near the memory card slot to turn the camera off and then turn on the camera again. Unlike the reset operation (page 100), pressing the reset button near the memory card slot does not initialize camera settings.
Image Recording	
Image is not recorded when the shutter button is pressed.	1) If the camera is in the PLAY mode, touch "📷" (REC) to enter the REC mode. 2) If the message "Memory Full" appears, transfer images to your computer, delete images you no longer need, or use a different memory card.
Auto Focus does not focus properly.	1) If the lens is dirty, clean it off. 2) The subject may not be in the center of the focus frame when you compose the image. 3) You may be moving the camera when shooting. Try shooting with the "High Speed Anti Shake" BEST SHOT scene, place the camera on a tabletop or some other stable surface, or find some way to fix the camera in place. 4) You may be pressing the shutter button all the way without waiting for Auto Focus. Half-press the shutter button and allow enough time for Auto Focus to focus.
The subject is out of focus in the recorded image.	The image may not be focused properly. When composing the image, make sure the subject is located inside the focus frame.

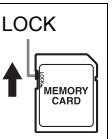
Problem	Possible Cause and Recommended Action
The LED light does not light.	1)If the battery is dead, charge it (page 19). 2)LED light operation is disabled automatically whenever you are shooting with a BEST SHOT scene and HDR Art. Select a different recording mode (page 36).
Camera powers down during Self-timer countdown.	The battery may be dead. Charge the battery (page 19).
The monitor screen image is out of focus.	1)You may be using “Macro” for scenery or portraits. Use Auto Focus for scenery and portrait shots (page 63). 2)You may be trying to use Auto Focus or “Infinity Focus” when shooting a close-up shot. Use the “Macro” for close ups (page 63).
There is digital noise in images.	1)Sensitivity may have been increased automatically for a dark subject, which increases the chance of digital noise. Use a light or some other means to illuminate the subject. 2)Shooting with a snapshot with a high ISO sensitivity setting can increase digital noise in the image. If digital noise becomes a problem, try changing the ISO sensitivity setting to a lower value.
A recorded image was not saved.	1)Camera power may have been turned off before the save operation was complete, which will result in the image not being saved. If the battery indicator shows , charge the battery as soon as possible (page 19). 2)You may have removed the memory card from the camera before the save operation was complete, which will result in the image not being saved. Do not remove the memory card before the save operation is complete.
Though available lighting is bright, the faces of people in the image are dark.	Not enough light is reaching the subjects. Adjust EV shift to the + side (page 60).
Night shots come out bad.	Use the “High Speed Night Scene” BEST SHOT scene (page 47) when shooting at night.
Subjects are too dark when shooting images in a seashore or ski area.	Sunlight reflected by water, sand, or snow, can cause underexposure of images. Adjust EV shift to the + side (page 60).
The image is out of focus during movie recording.	1)Focusing may not be possible because the subject is outside the focus range. Shoot within the allowable range. 2)The lens may be dirty. Clean the lens (page 108). 3)During High Speed Movie recording, focus is fixed at the position where it was when recording started. To focus an image, half-press the shutter button for Auto Focus before you touch “” (Movie) to start recording.

Problem	Possible Cause and Recommended Action
Playback	
The color of the playback image is different from what appears on the monitor screen when shooting.	Sunlight or light from another source may be shining directly into the lens when you are shooting. Position the camera so sunlight does not shine directly into the lens.
Images are not displayed.	This camera cannot display non-DCF images recorded onto a memory card using another digital camera.
Images cannot be rotated.	Note that you cannot edit the following types of snapshots. • Panorama images • Snapshots recorded with another camera • Extracted subjects
File Deletion	
A file cannot be deleted.	The file may be protected. Unprotect the file (page 76).
Other	
The wrong date and time are displayed, or the wrong date and time are being stored along with image data.	The date and time setting is off. Set the correct date and time (page 97).
The messages on the display are in the wrong language.	The wrong display language is selected. Change the display language setting (page 98).
Images cannot be transferred over a USB connection.	1)The USB cable may not be connected securely. Check all connections. 2)If the camera is not turned on, turn it on. 3)Your computer may not be able to recognize the camera if you connect via a USB hub. Always connect directly to the computer's USB port.

	Problem	Possible Cause and Recommended Action
	Language selection screen appears when the camera is turned on.	1) You did not configure initial settings after purchasing the camera or the camera may have been left with a dead battery. Check the camera setup (pages 24, 97). 2) There may be a problem with the camera's memory data. If this is the case, perform the reset operation to initialize the camera's setup (page 100). After that, configure each setting. If the language selection screen does not re-appear when you turn the camera on, it means that the camera's memory management data has been restored. If the same message appears after you turn power back on, contact your retailer or a CASIO authorized service center.
	There are various indicators and values on the monitor screen.	The monitor screen shows indicators and other information about shooting conditions and the image you are recording. You can touch the tab and then touch the "DISP" to select what information you want to include on the display (page 9).
	Buttons are not responsive right after the power has been turned on.	With large capacity memory cards there is a delay after the power has been turned on before the buttons become responsive.

Display Messages

ALERT	The camera's protection function may have activated because camera temperature is too high. Turn off the camera and wait until it cools down before trying to use it again.
Battery is low.	Battery power is low.
Card ERROR	There is something wrong with the memory card. Turn off the camera, remove the memory card and then reload it into the camera. If this message re-appears when you turn the camera back on, format the memory card (page 100). **IMPORTANT!** • Formatting a memory card deletes all its files. Before formatting, try transferring recoverable files to a computer or some other storage device.
Connecting to the network	Camera power was turned off while image data was being copied to a computer or other device using a FlashAir card or an Eye-Fi card (pages 89, 90).
File could not be saved because battery is low.	Battery power is low, so an image file could not be saved.
Folder cannot be created.	You are trying to record a file while there are already 9999 files stored in the 999th folder. If you want to record more, delete files you no longer need (page 33).
LENS ERROR	This message appears and the camera turns off whenever lens performs some unexpected operation. If the same message appears after you turn power back on, contact a CASIO authorized service center or your original retailer.
Memory Full	Memory is full with images you recorded and/or files saved by editing operations. Delete files you no longer need (page 33).
Record Error	Image compression could not be performed for some reason during image data storage. Shoot the image again.
SYSTEM ERROR	Your camera system is corrupted. Contact your retailer or a CASIO authorized service center.

The card is locked.	The LOCK switch of the SD, SDHC, or SDXC memory card loaded in the camera is in the locked position. You cannot store images to or delete images from a memory card that is locked. 
There are no files.	There are no files in built-in memory or on the memory card.
This card is not formatted.	The memory card loaded in the camera is not formatted. Format the memory card (page 100).
This file cannot be played.	The file you are trying to access is corrupted or is a type that cannot be displayed by this camera.
This function cannot be used.	This message will appear part way through an operation when you attempt to use a function that is not allowed in combination with another function.

Number of Snapshots/Movie Recording Time

Snapshot

Image Size (Pixels)	Approximate File Size	Built-in Memory*1 Recording Capacity	SD Memory Card*2 Recording Capacity
12M (4000×3000)	4.13 MB	7	2286
3:2 (4000×2656)	3.62 MB	9	2728
5M (2560×1920)	1.72 MB	14	4283
VGA (640×480)	290 KB	91	26809

Movies

Image Size / Pixels (Audio)	Approximate Data Rate (Frame Rate)	Maximum File Size	Built-in Memory*1 Recording Capacity	Maximum Recording Time with SD Memory Card*2	File Size of 1-minute Movie	Continuous Recording Time per Movie*3
Full HD 1920×1080 (Monaural)	14.2 Megabits/ second (30 frames/ second)	4 GB or 29 minutes	27 seconds *4	2 hours 14 minutes 55 seconds	106.5 MB	29 minutes
HD 1280×720 (Monaural)	10.9 Megabits/ second (30 frames/ second)		36 seconds	2 hours 56 minutes 25 seconds	81.8 MB	29 minutes
HS240 512×384 (No audio)	40.0 Megabits/ second (240 frames/ second)		9 seconds	48 minutes 5 seconds	300.0 MB	12 minutes 58 seconds

*1 Built-in memory capacity after formatting (Approx. 52.2MB)
*2 When using a 16GB SDHC memory card (SanDisk Corporation). Number of image and recording time values depend on the memory card you are using.
*3 The allowable recording time will be shorter if the capacity of the SD memory card you are using is smaller than the maximum size of one file.
*4 The data transfer rate of built-in memory is not sufficient for HD movies. Whenever possible use an Ultra High-Speed Type memory card.

- Snapshot and movie recording capacity values are approximate and intended for reference only. Actual capacity depends on image contents.
- File size and data rate values are approximate and intended for reference only. Actual values depend on the type of image being shot.
- When using a memory card with a different capacity, calculate the number of images as a percentage of 16GB.
- The time it takes to play back a high speed movie will be different from the time it takes to record it. If you record a high speed movie for 10 seconds, for example, it will take 80 seconds to play it back.
- Each movie can be up to 29 minutes long. Movie recording stops automatically after 29 minutes of recording.

Specifications

File Format	Snapshots: JPEG (Exif Version 2.3; DCF 2.0 standard) Movies: MOV format, H.264/AVC standard, IMA-ADPCM (monaural)
Recording Media	Built-in Memory (Image Storage Area: 52.2MB*) SD/SDHC/SDXC * Built-in memory capacity after formatting
Recorded Image Sizes	Snapshots: 12M (4000×3000), 3:2 (4000×2656), 5M (2560×1920), VGA (640×480) Movies: Full HD (1920×1080 30 fps), HD (1280×720 30 fps), HS240 (512×384 240 fps)
Effective Pixels	12.1 Megapixels
Imaging Element	Size: 1/2.3-inch square pixel high-speed CMOS Total Pixels: 12.75 Megapixels
Lens/Focal Distance (Snapshot)	F2.8 f = 3.8 mm (equivalent to 21 mm in 35 mm format)
Zoom	Up to 4.0X when SR zoom and Digital zoom are used in combination Up to 15.9X when SR Zoom, HD Zoom and Digital zoom are used in combination (VGA size)
Focusing	Contrast Detection Auto Focus • Focus Modes: Auto Focus, Macro Focus, Pan Focus, Infinity • AF Area: Spot * Intelligent AF area used when Premium Auto is selected.
Approximate Focus Range (Snapshot) (From Lens Surface)	Auto Focus: 8 cm to ∞ (3.1" to ∞) Macro Focus: 8 cm to 50 cm (3.1" to 19.7") Infinity: ∞
Metering	Multi-pattern by imaging element
Exposure Control	Program AE
Exposure Compensation	–2.0 EV to +2.0 EV (in 1/3EV steps)
Shutter	CMOS electronic shutter
Shutter Speed	Snapshot (Auto): 1/10 to 1/16000 second Snapshot (Premium Auto): 1 to 1/16000 second * May differ due to the camera setup.
Aperture Value	F2.8

White Balance	Auto, Daylight, Overcast, Shade, Daywhite Fluorescent, Daylight Fluorescent, Tungsten, Manual WB
Sensitivity (Standard Output Sensitivity)	Snapshots: Auto, ISO 100, ISO 200, ISO 400, ISO 800, ISO 1600, ISO 3200 equivalent Movies: Auto
Monitor Screen	3.0-inch TFT color LCD (Super Clear LCD) 460,800 (960×480) dots Touch Screen
External connection terminal	USB port (Hi-Speed USB compliance, USB charging), HDMI output (Micro/TypeD)
Microphones	Monaural
Speaker	Monaural
Power Requirements	Special rechargeable lithium ion battery (built-in)

Approximate Battery Life

All of the values provided below represent the approximate amount of time under normal temperature (23°C (73°F)) before the camera turns off. These values are not guaranteed. Low temperatures shorten battery life.

Number of snapshots (Operating Time)*1	230 shots
Actual movie recording time (Full HD movie)*1	50 minutes
Approximate continuous movie recording time (Full HD Movie)*1	1 hour 20 minutes
Approximate continuous movie recording time (High speed movie)*1	1 hour 30 minutes
Continuous Playback (Snapshots)*2	2 hours 20 minutes

- Recording Medium: 16GB SDHC memory card (SanDisk Corporation)

*1 In accordance with CIPA (Camera and Imaging Products Association) standards
*2 Standard temperature (23°C (73°F)), one-image scroll approximately every 10 seconds

- The above values are based on a full charge, the first time the battery is charged after the camera is purchased. Repeated charging shortens battery life.
- Frequency of Auto Focus usage and the time the camera is on greatly affects recording time and number of shots values.

Power Consumption	3.7 V DC, Approximately 3.1 W
Dimensions	122.8 (W) × 59.0 (H) × 14.9 (D) mm (4.8" (W) × 2.3" (H) × 0.59" (D))
Weight	Approximately 157 g (5.5 oz) (including memory card*) Approximately 155 g (5.5 oz) (excluding memory card) * 16GB SDHC memory card (SanDisk Corporation)

■ USB-AC adaptor (AD-C53U)

Input Power	100 to 240 V AC, 50/60 Hz, 100 mA
Output Power	5.0 V DC, 650 mA
Operating Temperature Requirements	5 to 35°C (41 to 95°F)
Dimensions	53 (W) × 21 (H) × 45 (D) mm (2.1" (W) × 0.83" (H) × 1.8" (D)) (excluding projections)
Weight	Approximately 37 g (1.3 oz)

- Power cord precautions for use in Singapore
  The power cord set is not supplied. The power cord used must comply with relevant national and/or international standards.

Declaration of Conformity According to EU Directive

CE

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